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COMPUTERWORLD

Generating Resentment

Veteran programmers seethe as youngsters pocket fat paychecks

By Jean S. Bozman

Dragan Jagnjic, once a Cobol jockey, learned Unix. Now 31, he's systems architect at a $1.2 billion company.

Watching a hotshot programmer walk in, straight out of school, and earn twice as much as you do is mighty hard to take.

"They call us the Cobol dinosaurs," says one West Coast programmer, who requested anonymity. "We've got people here that learned C++ or object-oriented [languages] earning $70 to $80 an hour vs. $30 an hour for us."

This envy is real and widespread. Employers are paying premiums for workers skilled in the hot products [CW, Nov. 13]. Programmers schooled in older languages

Generation gap, *page 76*

Want WordPerfect?

Corel seems to; Novell promises to reveal buyer this week

By Lisa Picarille

Novell, Inc. this week will announce it finally has a buyer on the hook for the former WordPerfect Corp.

Graphics developer Corel Corp., a late bidder, has emerged as the most likely buyer for the division and its suite of desktop applications. "We believe the discussions we are in with Novell are in the final stages," a Corel spokeswoman said.

For millions of WordPerfect Office users, the deal would mean continued support for the application suite. "WordPerfect users are ripe to be upgraded or even just served continuously," said Jeffrey Tarter, editor of "Softletter," an industry newsletter in Watertown, Mass.

Ottawa-based Corel is expected to grab WordPerfect at the fire sale price of $250 million, sources close to the negotiations said. Novell paid $855 million for WordPerfect more than 1½ years ago.

Tarter said there are two likely reasons behind the Corel buyout. First: Corel may want to broaden its software portfolio beyond the graphics niche.

"The theory is that whoever has the most titles wins," he said. "And there is some truth to that, especially when competing against Microsoft."

Second: WordPerfect's huge installed base of users provides a lucrative opportunity for the buyer.

"There is a ton of money to be made over the next three to five years just by filling ongoing orders for older products in this installed base," Tarter said. According to Novell, the WordPerfect division has sold 25 million units to date.

Others had expressed serious interest in acquiring WordPerfect. Bain Capital, Inc., a venture capital firm in Boston, spent the past two months

WordPerfect, *page 121*

Lotus bulks up Notes 4.0 for mission-critical push

By Tim Ouellette
ORLANDO, FLA.

As Notes networks grow up, Lotus is trying to make its groupware package more enterprise-friendly.

IBM subsidiary Lotus Development Corp. last week said it will add several features to the recently released powered-up Notes 4.0. These cover the ability to cluster Windows NT-based Notes servers, the addition of frameworks for developing World Wide Web-enabled applications, and the ability to integrate IBM's MQSeries messaging middleware and SAP AG's R/3 client/server software (see story, page 6).

The moves were designed to make Notes servers more available

Notes, *page 16*

More on Lotus

Lotus will offer the following Notes components in a starter bundle for $49 per seat. It will ship in the second quarter.

- Chart tool
- Data query tool
- Draw/diagram tool
- File viewer
- Comment box tool
- Project scheduler
- Spreadsheet

▶ See story, page 16

Newspaper

SAS on tap with apps

Client/server wares to ease cross-platform data access

By Julia King

SAS Institute, Inc. is about to step out into software's ready-to-wear market with its first line of packaged client/server applications.

The Cary, N.C.-based company confirmed it will announce next week two business applications that it hopes will extend its reputation beyond the arena of statistical analysis and reporting tools.

The first will be a financial package, the SAS Business Solution for Financial Consolidation and Reporting, that will be released in March. A SAS human resources package will follow in the summer.

Both applications are written in SAS' platform-independent programming language and were designed to be used with virtually any other vendor's transaction-oriented software.

SAS intends to market the packages as applications that complement — rather than compete with — software from enterprise client/server vendors such as Oracle Corp., SAP AG and PeopleSoft, Inc. With its 29,000 customers and

SAS, *page 121*

IS must deal with cheap 'net devices

By Kim S. Nash

Two little-known hardware makers plan to target IS — rather than the home consumer — with their forthcoming Internet appliances. These stripped-down PCs are built strictly for on-line access.

Rather than putting the 'net devices on end-user desktops, some information systems departments are expected to deploy them as kiosk-like boxes in local outlets of banks, retailers and supermarkets. The chore of maintaining and connecting the appliances to internal systems also will fall to IS.

This week, TransPhone in Ottawa will show a preproduction Internet device at the Demo 96 show in Indian Wells, Calif. And last week, SunRiver Corp. in Austin, Texas, announced a machine it has dubbed Internet Terminal. Both products are due out in March.

So far, the most prominent 'net appliance evangelists — Oracle Corp. and Sun Microsystems, Inc. — have hailed the boxes, some of which will cost $500 or less, as perfectly suited to casual home users. Yet since the 'net device concept burst on the scene at Comdex/Fall '95, it has been roasted as much as it has been toasted.

Internet appliances, *page 121*

A PUBLICATION OF IDG

Inside Computerworld

Jan. 29, 1996

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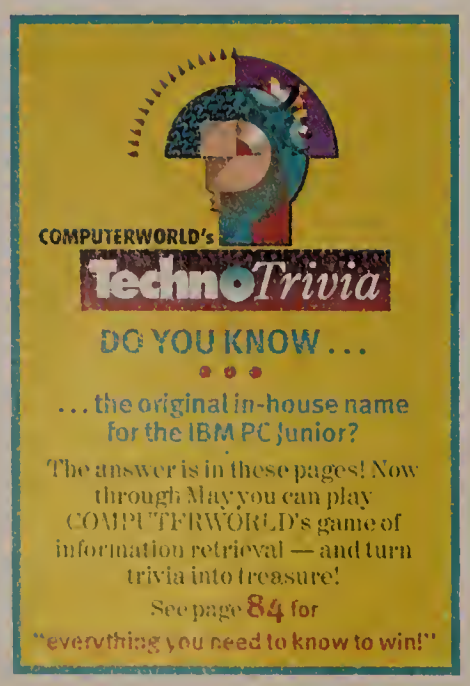

Choice Cuts

Users of network management packages *generally are happy. But vendors have to fill some gaps in their product lines.* See **Buyer's Guide to Network Management, page 85**

A shortage of skilled managers *who can master networks is creating high demand, high regard and high salaries.* See **Careers, page 104**

Overall satisfaction

OpenView
Hewlett-Packard Co.
84%

NetView
IBM
77%

Sun Net Manager
SunSoft, Inc.
74%

Spectrum
Cabletron Systems, Inc.
71%

SAP R/3: Dream or nightmare?
SAP detractors should stop whining and implement R/3 correctly, says Jeff Coomer, an IS chief. Just the response you'd expect from yet another "SAPaholic," counters William Zeitz, a former CIO.
See **In Depth, page 100**

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Special Electronic Commerce Quarterly: Why getting caught in the intranet vs. Notes religious war can bog down your company's electronic commerce plans.

Etc.

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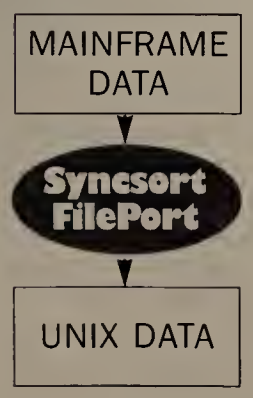

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Obscureware

Getting user complaints about hand and wrist strains from using a mouse? Hunter Digital in Los Angeles has a feet-operated contraption called the No Hands Mouse. The left pedal provides 360-degree control of the cursor's direction; pressing harder makes the cursor go faster. The right pedal is for clicking.

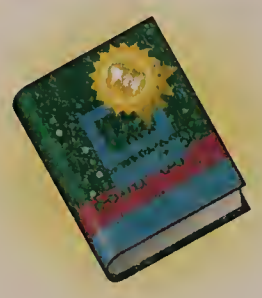
Eloquent Technology in Ithaca, N.Y., wants to make the output from text-to-speech software sound a little less robotic. The vendor claims its Eloquence program has natural-sounding speech that can show various degrees of hoarseness, breathiness, excitement or boredom.

Quality of Life is a $16 Windows software package from Datasmiths in Manville, N.J., that "generates ideas for fun, interesting and life-enriching things to do." Users can set time and cost criteria and then ask for ideas — or just click on the "spontaneous ideas" button.

Are sounds from your multimedia PC bothering co-workers or your sleeping family at home? Consider SoundJack Sr. from Enhance Cable Technology in San Jose, Calif. The $25 kit includes stereo headphones and an audio control knob to turn down the sound.

PrintScreen 2.0 for Windows is a $30 package that lets users print any Windows screen with a single keystroke — an old DOS feature that Microsoft left out of Windows. The vendor of the "if you can see it, you can print it" application is JE Software, a division of Janesway Electronics in Mount Vernon, N.Y.

Computer book bestsellers



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General category (author, publisher)

1. *Internet for Dummies*, 2nd edition (John Levine, IDG Books)
2. *PCs for Dummies*, 2nd edition (Dan Gookin, IDG Books)
3. *World Wide Web Yellow Pages* (Andrew Bussey, New Riders)
4. *Upgrading and Repairing PCs*, 4th edition (Scott Mueller, Que)
5. *Java with CD-ROM* (Tim Ritchey, New Riders)

Operating systems

1. *Windows 95 for Dummies* (Andy Rathbone, IDG Books)

Applications

1. *Quicken 5 for Windows for Dummies* (Steve Nelson, IDG Books)

Macintosh

1. *Macs for Dummies*, 3rd edition (David Pogue, IDG Books)

A brutally honest annual report

From BrainTech, an advanced microprocessor design firm based in Vancouver, B.C.

"The 1995 calendar year was, for the most part, a disappointment for BrainTech shareholders. While the Dow Jones surged to record highs, BrainTech's stock plummeted to record lows. It seemed that BrainTech took two steps backward for every step forward."

■ **Send contributions of off-beat news, lists and anecdotes to mbetts@cw.com.**

Japan's NEC Corp. has developed a flexible, snake-shaped robot that can crawl into the rubble of earthquake-damaged buildings to rescue people. It moves like an inchworm and raises its TV-camera head to look around.

Hot and cold

An executive search firm has categorized and provided commentary on the following jobs based on 1995 interviews, client requests and employment advertising

HOT JOBS

- **General manager of an Internet-related company**
  ...talent base is small and elusive
- **Vice president of content**
  ...acquires and creates programming to keep users on-line
- **Chief technology officer**
  ...position created because companies have found their chief information officers "overwhelmed with technology"
- **Mergers and acquisitions executive**
  ...has re-emerged as a hot commodity due to industry consolidation

NOT-SO-HOT JOBS

- **Human resources executive**
  ...victim of downsizing and outsourcing
- **Administrative assistant**
  ..."has lost out to the notebook computer"
- **Corporate raider**
  ...despised by American business
- **Vice president of diversity**
  ..."effort lost out to delivering a fatter bottom line"

Source: Christian & Timbers, Inc., Cleveland

factoid of the week

Only 34% of the general public voted in the last national election, but a Votelink poll shows that 86% of on-line "netizens" did so. A separate poll in California finds that, although most voters used traditional media to get campaign information, 9% got their information from on-line services, and 25% expect to tap on-line resources in the future.

Source: Votelink, Boulder, Colo.; California Voter Foundation, Sacramento, Calif.

Decree lifted; ISSC gears up

By Thomas Hoffman and Craig Stedman

The U.S. Department of Justice has finally unshackled IBM from a 40-year-old consent decree that had placed a multitude of legal restrictions on the firm's PC, workstation and services businesses.

Parts of the antitrust decree that deal with IBM's mainframe and AS/400 business practices were left intact, however, on the grounds that IBM still holds a monopoly in those markets.

Although IBM is keeping mum on its plans, observers say the government's move should help IBM's Integrated Systems Solutions Corp. (ISSC) services unit compete more effectively with service titans such as Electronic Data Systems Corp. and Andersen Consulting.

For example, the 1956 Consent Decree required ISSC to purchase IBM hardware and software at market prices, while rivals such as EDS were able to buy from IBM at lower costs through volume discounts.

"If [ISSC] can shave a couple of points off the hardware and software margins [on big outsourcing deals], that could result in a lot of business downstream," said Tim Bourgeois, an analyst at International Data Corp. in Framingham, Mass.

Future unknown

An IBM spokesman declined to comment on ISSC's future. The spokesman also declined to comment on Wall Street rumors about IBM's interest in acquiring services rival Computer Sciences Corp. (CSC).

Those rumors began swirling two weeks ago, after IBM Chief Financial Officer Richard Thoman told analysts that IBM — with a $13 billion nest egg it has built up — "clearly wants to consider buying services businesses."

The Armonk, N.Y., computer company already made some services-related acquisitions last year, buying Chrysler Systems Corp. and a GE Capital Corp. maintenance unit, for example.

Nevertheless, analysts are split on whether IBM will make a play for CSC, a stalwart in the federal government arena. CSC's 30,000 employees and strong European presence would go a long way toward helping IBM fill out its global services ranks, an area many observers say is understaffed.

For example, one of the main reasons Xerox Corp. picked EDS over ISSC in a 1994 global outsourcing deal was because EDS had more consistent staffing levels around the world than ISSC, according to sources who were close to the deal.

A spokesman for Xerox claimed those assertions are "too simplistic." He added that additional criteria, which he declined to detail, led to the selection of EDS.

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IBM building middleware bridges to R/3, Internet

By Craig Stedman and Julia King

IBM will seek to further raise the profile of its MQSeries middleware in coming months by linking the asynchronous messaging product to the Internet and SAP AG's R/3 client/server software.

MQSeries guarantees delivery of messages between different applications and can retrace its steps and start over again if something goes awry. It is emerging as a key part of IBM's network computing strategy.

Messaging software

Messages are stored in queues until a connection is established between systems; processing can continue while a response is awaited.

Easier access

The linking project will give R/3 and Internet applications a ready-made, reliable way to get at transaction data stored on mainframes and other back-end servers.

The R/3 and Internet ties are expected to be similar to the MQSeries Link for Notes that IBM shipped recently [CW, Jan. 8]. That code, which is expected to support Notes 4.0 by midyear under plans detailed last week, turns data requests into MQSeries messages that find and fetch the desired information.

SAP is working alongside IBM on the R/3 integration, sources said.

Steve Craggs, MQSeries business manager at IBM's software lab in Hursley, England, confirmed that an R/3 link is in the works but didn't disclose details.

The sources said it will be jointly announced with SAP in March as a way to connect the German company's Application Link Enabling (ALE) technology to non-R/3 environments.

Released in October, ALE currently supports messaging only between different R/3 applications. Lashing R/3 together with other systems requires users to write their own interfaces, which can be "a horrendous problem," said Gary Banks, director of the center of technical excellence at Monsanto Co. in St. Louis.

On average, it takes Monsanto up to four months to develop and test a custom interface for communicating between systems, Banks said.

With products such as MQSeries, "the neat thing is you're doing interfaces without programming," he explained.

Reacting to trend

IBM plans to follow the R/3 link late this year with an Internet gateway into MQSeries, Craggs said.

But the explosion of interest in using the Internet may push IBM to release a tool kit version for developers in the second or third quarter. A similar approach was used with the Notes link last year.

The Internet gateway should allow any Hypertext Markup Language application to be connected to MQSeries, Craggs said.

Security provisions will be included for identifying the middleware as a friendly face to corporate firewalls, he added.

The potential of tying MQSeries to the Internet "is definitely interesting," said Steve Goldman, director of technology planning at the Chicago Mercantile Exchange.

The futures exchange uses the IBM middleware to enable members to submit transactions to clearing systems in real time.

Being able to extend that capability to the Internet "might be beneficial, since we already have the interfaces in place for MQSeries," Goldman said.

The middleware's guaranteed-delivery features are also critical because the exchange runs more than 300,000 messages a day through MQSeries, he added.

The various links are part of an effort by IBM to move MQSeries "out of the mysterious mainframe space" that it initially was relegated to, said Sally Cusack, an analyst at The Standish Group International, Inc. in Dennis, Mass.

More to come

IBM also plans to ship these MQSeries-related technologies this year

Technology	Expected availability
Notes 4.0 link and support for LotusScript language	Midyear
Wireless support and dial-up features for mobile users	Q2 for OS/2 and AIX; Q3 for Windows 3.1
Bridges to IBM's CICS and IMS mainframe transaction managers	Midyear for IMS; late this year for CICS
Support for IBM's System Object Model object request broker	Midyear; distributed version due late this year

IBM modernizes VSE and VM. See page 39.

Apple/Sun deal still in shade

By Lisa Picarille

User reaction was mixed last week amid a swirl of conflicting reports that Apple Computer, Inc. was on the verge of being bought by Sun Microsystems, Inc.

Although some rabid Macintosh devotees denounced the possible deal as the death of the Macintosh, others conceded that Sun may be in a position to help perpetuate the life of their favorite machine. Still other Macintosh users said they would wait for the ink to dry before judging the merits of any deal.

Mac is here to stay

Apple's core users — desktop publishers and graphics and video professionals — seemed confident that no matter whom Apple might team up with, the Macintosh wouldn't go away.

"We are somewhat concerned, but where we are using the Mac for desktop publishing — and Apple is so established in that area — it's not realistic to think that would go away. Apple has well-rooted market penetration in that area," said Christopher Candela, operations manager at Impressions, a Rosyln Heights, N.Y., marketing services and sales promotion agency. It has about a dozen high-end PowerPC-based Power Macintoshes.

But at Dartmouth-Hitchcock Medical Center in Lebanon, N.H., which has more than 2,500 Macintoshes, Apple's situation is being watched closely and with great concern.

Stephen Priest, the center's director of computer services, said he planned to gather all of his information systems people for a meeting about the Cupertino, Calif., company's future and what it means for the medical center.

"We plan to look at the current situation and try and develop some strategy," Priest said. "We are a bit nervous because we have a very big investment in the Mac. Apple has been a good company for us, and we would like to see them be successful and expand even further. But right now we just have to wait and see."

Some corporate Macintosh users said a merger with Mountain View, Calif.-based Sun would strengthen Apple's position in the corporate market.

"I would jump up and down and cheer," said Mike Bailey, a systems analyst at Lockheed Martin Missile and Space, an aerospace firm in Sunnyvale, Calif., that has more than 6,500 Macintoshes. "It would change things dramatically for Lockheed. I think it would give us a lot more confidence that the Apple product line would be around for long time."

"If Apple and Sun get together, it would give Apple more credibility in the business marketplace," said John Papa, a partner at The Carson Group, a New York-based financial services company that has more than 100 Macintoshes and several Sun SPARCstations. "There would be a better connection between the front end and the back end."

On the table

	Apple	Sun
1995 revenue	$11.1 billion (Ended Sept. 31)	$5.9 billion (Ended June 31)
1995 profit	$424 million	$356 million
Market valuation	$4 billion	$8 billion
Current stock price*	$32.25 per share	$43.50 per share
Employees	13,700	17,000

*As of market close Jan. 25

Shares alike

No deal between Sun and Apple had been announced at press time. Price may be the reason, sources close to the negotiations said. Sun is reportedly offering Apple $33 a share ($4 billion) — a puny premium to Apple's recent share price of about $32. Apple reported a $69 million loss for its most recent quarter, but it still has more than $1 billion in cash on hand. It should sell for $35 to $40 a share, analysts said.

Will merger cast shadow?

The news of a potential Apple and Sun merger may have shaken and stirred Macintosh users, but some Sun users also were less than enthused about the potential union.

Some said they feared the task of turning Apple around would siphon both money and management time away from Sun's other businesses.

"I think they'd be better off spending their money in other areas rather than going off on a tangent and trying to bail Apple out," said Steve Morgan, director of hardware and database technologies at Robertson CECO Corp. in Columbus, Miss. Robertson CECO, a maker of prefabricated steel buildings, has 12 Sun servers and about 400 workstations.

An Apple acquisition "is not relevant to us, so we'd prefer that they not do it," said Mark Factor, vice president of IS at Au Bon Pain Co., a Boston-based restaurant chain and Sun customer.

It will likely take a lot of money and human resources to salvage Apple, and the process could hurt Sun users if it diffuses the company's well-honed business focus, Factor added.

— Craig Stedman and Lisa Picarille

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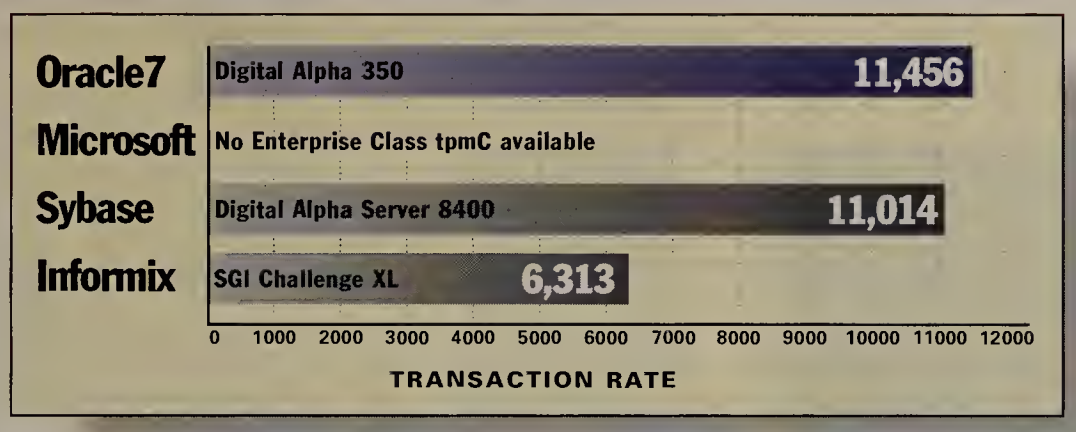

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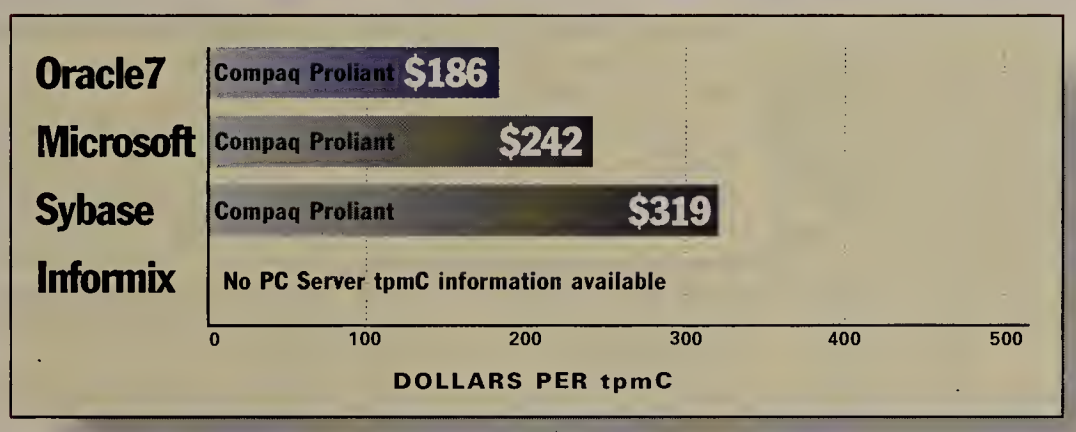

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'Universal remote' eases access

Comsat device is lightweight, wireless

By Mindy Blodgett

For the untethered user who dreams of wireless access to the corporate home office from even the most remote corners of the world, that reality is now one step closer.

Last week, Comsat Mobile Communications in Bethesda, Md., announced the world's first personal satellite communications system, called Planet 1.

The system, which will allow personal voice and data communications via a portable, notebook-size terminal, will be offered in March in parts of Africa, western Australia, Japan, China and Russia. Coverage in the eastern half of the U.S. will follow in August; the service will be offered to the rest of the world in the next year or so, Comsat officials said.

The service is likely to appeal to international business travelers anxious for digital voice service and instant access to their voice and electronic mail.

Linkage, not luggage

Currently, users of satellite communication connections must lug around suitcase-size systems with antennas. In the Comsat system, the antenna is in the flip-up part of the portable device.

The satellite-based service will be especially helpful for users in areas of the world without telephone or cellular coverage, Comsat representatives said.

"We think this service is pretty interesting and pretty exciting,"

Planet 1 is a lightweight *personal satellite communications system that offers remote wireless access*

said Virginia Brooks, an analyst at Aberdeen Group, Inc. in Boston. "This is just the beginning of something I think we are going to see a lot more of. This is the first big step in combining voice and data with a satellite link."

The service will work by using a device that looks like a phone attached to a notebook computer. The terminal, which weighs just under 6 pounds and will cost $2,995, was designed by NEC America, Inc. Eventually, the company hopes to offer smaller devices the size of cellular phones.

Planet 1 will offer voice, fax, brief data transmissions and E-mail access. At a throughput rate of only 2.4K byte/sec., the transmissions will be too slow for long file transfers.

The service is provided through mobile terminals, a regional phone system and four Inmarsat-3 satellites, which were designed to use bidirectional signals among Earth-based stations.

Comsat officials said the service will cost $3 per minute, pending approval by the Federal Communications Commission. Comsat will seek agreements with worldwide telephone service carriers, which will bill the user.

Those service agreements are crucial to making the system work, said Andrew Seybold, editor of the "Outlook on Communication and Computing" newsletter in Boulder Creek, Calif. Otherwise, billing will be confusing and usage restricted, he said.

The Comsat service is the first large-scale personal satellite communications system to come to market. Many others, including Motorola, Inc.'s Iridium satellite project, are still in the planning stages.

Shortage delays new ThinkPads

By Mindy Blodgett

What is old is new again for users hankering for new ThinkPads from IBM.

IBM PC Co. has delayed the release of a line of low-end ThinkPad notebooks because of a problem with supply, according to company officials.

Sources inside the company said IBM was concerned that not enough notebooks had been produced in time for the announcement. IBM didn't want to make its first important announcement of the year and then not have the supply to back it up, they added.

IBM had planned to announce new 90-MHz Pentium ThinkPad 760s — the 760L and the 760LD — this week. But it now plans to delay the announcement until enough notebooks are ready to be shipped, which should be in a few weeks, the sources said.

IBM, already the market leader in high-end notebooks, now hopes to capture the imagination of users eager for premium features at low-end prices, according to industry observers.

The Pentium ThinkPad 760s will have 10.4-in. color screens, nickel batteries with three- to six-hour life spans, 810M-byte hard drives and 8M bytes of RAM. With a CD-ROM drive, the machine will weigh 7.1 pounds; without the drive, it will weigh about 6.5 pounds.

Look Sharp

Sharp Electronics Corp. has entered the corporate market with a line of Pentium multimedia notebooks with infrared technology. Prices aren't set yet.

Pricing is expected to start at about $4,200 but could go as low as $4,000, IBM representatives said.

Separately, IBM plans to announce a price reduction for its entire ThinkPad line this week. The current price range for ThinkPads is $5,349 to $7,500.

Although the new prices aren't set, an IBM spokeswoman said prices will be reduced by up to $900. The ThinkPad 760CD is expected to drop from $7,500 to about $6,600, and the low-end ThinkPad 760C could go from $5,400 to about $4,999.

News Shorts

IBM reverses self, kills OS/2 for PowerPC

Now that **IBM** is indeed scrapping the PowerPC version of OS/2, industry observers are wondering how committed the vendor is to the PowerPC chip architecture. IBM plans to continue developing the Intel version of OS/2 but is dropping the RISC version because of lack of demand. The PowerPC version of OS/2 was due to ship this month, after more than three years of delays and highly publicized denials about plans to kill it. Without it, IBM has virtually no desktop operating system presence on the PowerPC, which now runs Microsoft Corp.'s Windows NT, Apple Computer, Inc.'s Mac OS, Sun Microsystems, Inc.'s Solaris, Novell, Inc.'s NetWare and IBM's AIX.

Sybase simplifies licensing

Starting Feb. 5, users of **Sybase, Inc.** databases will need to specify only how many servers they will have running and the total number of possible users at a site. While the Emeryville, Calif., company's simplified licensing may not save users money, it will spare them the uncertainty of figuring out what they spend under the current, complex licensing structure.

IBM raises Amdahl prices

IBM has quietly imposed new software pricing that could mean increases of up to 20% on MVS and related products for buyers of **Amdahl Corp.**'s high-end mainframes, according to Gartner Group, Inc. estimates. The pricing change affects Amdahl's System/390-compatible models with 10 and 12 processors. The new prices apply only when a company purchases or upgrades to the Amdahl boxes, IBM confirmed.

Microsoft improves 'net link, upgrades SNA Server

Microsoft Corp. last week released upgrades for its SNA Server Version 2.11 and Windows 95 software that improve Internet connectivity, support a wider array of platforms and devices and fix minor flaws. The Service Pack No. 1 for Microsoft SNA Server Version 2.11 and the Windows 95 Service Pack are free maintenance upgrades.

Switched-LAN monitoring

Frontier Software Development, Inc. will this week introduce a Remote Monitoring (Rmon) architecture called Unison for diagnosing switched-LAN networks. Key components include the first probe for Fast Ethernet connections plus new software for monitoring traffic by switch or by port. The Chelmsford, Mass., Rmon specialist is adding a SQL-based trend analyzer and Switch Monitor tool to its NetScout Manager program. Administrators could then check traffic through popular switches from external probes, such as the new Netscout Fast Ethernet Probe.

Datalogix lands record deal

Datalogix International, Inc. in Valhalla, N.Y., last week announced record sales of $13.9 million for its second quarter, along with the largest software sale in the manufacturing software vendor's history. The $16 million sale was to $12 billion Aluminum Company of America in Pittsburgh, which is standardizing its process manufacturing operations on Datalogix's Gemms client/server software.

Compaq posts results

Compaq Computer Corp. earned $789 million on revenue of $14.8 billion last year, compared with $867 million on revenue of $10.9 billion in 1994. Earnings fell primarily because of charges associated with the Houston PC maker's purchase of two networking companies, officials said.

Unisys down by $700M

Unisys Corp. last week reported a fourth-quarter loss of $676.8 million, which includes a $581.9 million restructuring charge that covers the cost of laying off 7,900 people. Revenue grew 5%, to $1.84 billion. For the year, Unisys lost $624.6 million, compared with a $100 million profit in 1995.

Xerox drops a billion

Xerox Corp. blamed a $1 billion fourth-quarter loss on the cost of selling its insurance business. The company made $311 million in the same period a year ago. Sales for the fourth quarter were $4.76 billion, up slightly from $4.59 billion in the previous year.

SHORT TAKE **Netscape Communications Corp.** and **America Online, Inc.** declined to comment on rumors of a potential equity deal between them.

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3Com ups switch flexibility

Cellplex 7000 to handle switched, Fast Ethernet

By Bob Wallace

At ComNet '96 in Washington this week, 3Com Corp. will announce plans to make its flagship ATM switch far more flexible by supporting switched and Fast Ethernet technologies, *Computerworld* has learned.

The upcoming products for the first time will give users a way to implement 3Com's Cellplex 7000 switch in backbone networks while protecting their investment in current networking desktop technologies.

"We use switched Ethernet and are moving to Fast Ethernet, with an eye toward ATM," said Steve Flis, network manager at MetroWest Medical Center in Framingham, Mass. "So an ATM switch that could support those technologies sounds ideal for us. We're putting switching everywhere to support applications such as teleradiology."

Asynchronous Transfer Mode (ATM) is an emerging high-speed switching technology that networking vendors are implementing in their products. It isn't widely deployed in enterprise networks yet, however.

Steve Flis *of MetroWest Medical Center applauds the move to a more flexible ATM*

Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consultancy, said 3Com is making a "very wise move by finally kissing the ATM 25M bit/sec. baby for desktop connections. But they're still a generation behind IBM."

3Com's long-range ATM plans still place more emphasis on higher-speed ATM backbone links via the Cellplex 7000 switch, rather than the 25M bit/sec. ATM desktop connections, Nolle added.

Sources said the new products will include the following:

- The 7200 module, which supports 12 10M bit/sec. switched Ethernet ports and two 155M bit/sec. ATM ports. This will enable users to link smaller switches and/or small groups to the 7000 switch.
- The 7600 module, which supports 16 100M bit/sec. Fast Ethernet ports. This product will prepare the 7000 to be linked to Fast Ethernet backbones, which are increasingly popular because they are cheaper than Fiber Distributed Data Interface and ATM versions.
- The ATMLink PCI card, which is an adapter card that will support 100M bit/sec. and 155M bit/sec. connections. Sources say it will cost between $800 and $1,000. 3Com already offers ATM adapter cards that work with other buses.
- Version 2.2 software for the 7000, which will enable the switch to support a type of ATM service called alternating bit rate, where bandwidth is used only when needed.

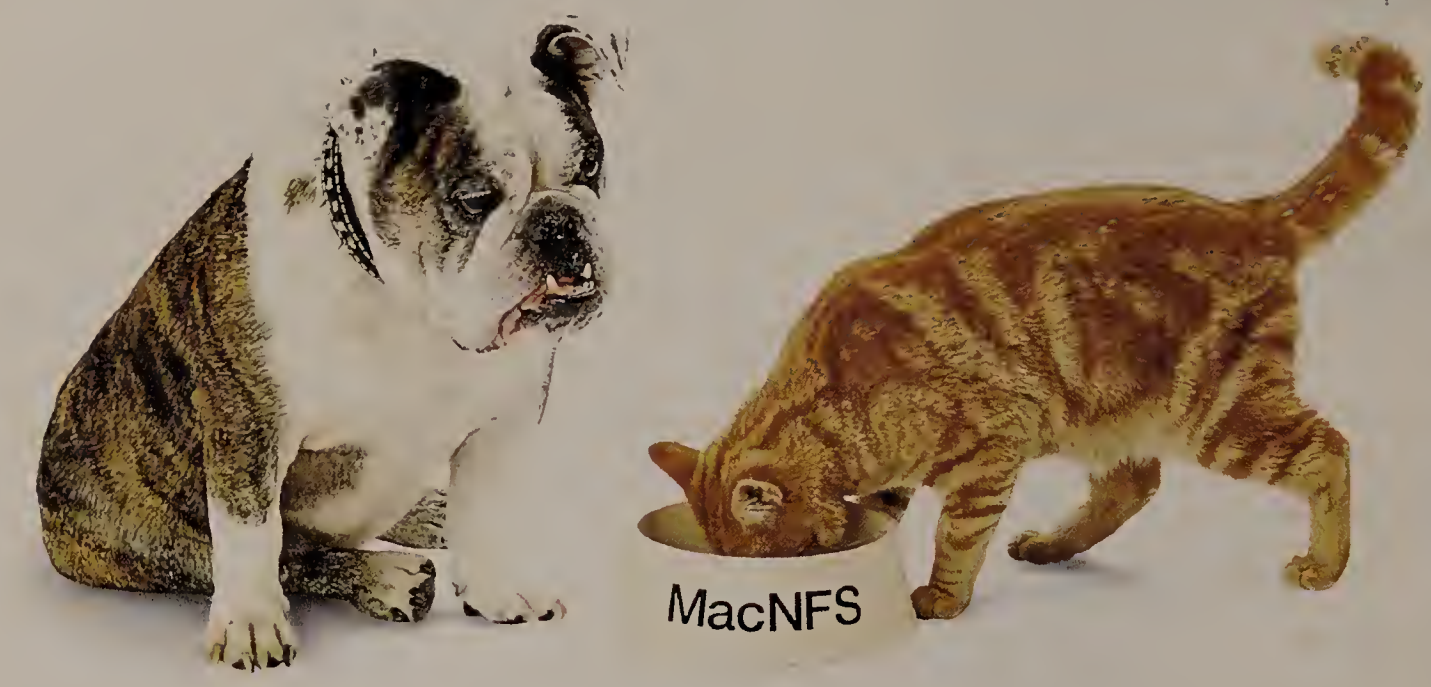
Controlling gridlock

3Com also will commit to making the 7000 more scalable by dramatically increasing the amount of traffic it can handle from 2.5G bit/sec. to 50G bit/sec. That effort will continue into 1997.

In addition, 3Com will use the ComNet show to stress its commitment to Chipcom Corp.'s ATM concentrator, which lets network managers support up to 12 25M bit/sec. desktop connections. Those are cheaper than the 155M bit/sec. links.

Sources said the 7200 and Version 2.2 software will ship this week, while the new adapter will ship next month. The 7600 is expected to ship in the third quarter at about $1,000 per port.

Prudential is testing a way to join frame relay with ATM. See page 73.



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SGI refreshes line, vaults over rivals

By Michael Goldberg

With an aging set of offerings threatening its growth, Silicon Graphics, Inc. (SGI) last week unveiled a refreshed line of products — workstations, servers and three-dimensional graphics systems — that get performance gains from faster chips.

SGI in Mountain View, Calif., introduced the InfiniteReality graphics engine that runs on its Onyx and PowerOnyx computers. It also released Indigo2 Impact workstations that contain R10000 processors from Mips Technologies, Inc. (see chart)

Graphics systems

The improved performance of these systems vaults SGI ahead of hardware competitors such as Sun Microsystems, Inc. and Hewlett-Packard Co. and graphics rivals such as Evans & Sutherland Computer Corp., analysts said.

"The R10000 is arguably the fastest processor on the planet right now. And with these new graphics, the InfiniteReality and the Impact lines ... really do bring [SGI] back to the point where they were three years ago, and they could say, 'We can do things nobody else can,'" said Andrew Feit, an analyst at Dataquest, Inc.

Users empowered

Users applauded the upgrades.

"We're very excited about the InfiniteReality [system] because it will speed up our graphics work by 10 times," said Michael Zeitlin, portfolio manager for the visual information technologies group at Texaco, Inc. in Houston. "In the oil and gas business, we work with data sets that always seem to be a little too large for the computers to handle. It's refreshing to know we can get performance like this."

SGI has provided "another level of power" for artists who create 3-D images, said Phil Neray, product marketing manager at Discreet Logic, Inc., a video special-effects software developer in Cambridge, Mass. "When you put this kind of power in the hands of artists, they will attempt to create new effects," Neray said.

SGI in March will release updated versions of the Challenge and PowerChallenge series that also harness performance gains from R10000 processors. Prices won't increase, so symmetrical multiprocessing machines can play to a commercial Unix market. The new servers that run on the Irix 6.2 operating system make SGI the second vendor after Digital Equipment Corp. to bring full 64-bit capability to commercial users, said Jean S. Bozman, an analyst at International Data Corp. in Mountain View, Calif.

The systems can directly address terabytes of data instead of hitting the 4G-byte limit of 32-bit operating systems. Bozman said SGI is giving users some flexibility because 32- and 64-bit applications will be able to run on the 64-bit Irix operating system.

Staff writer Stewart Deck contributed to this report.

A German travel agency picks Tandem servers. See page 45.

Pleased to meet you

Silicon Graphics last week rolled out the following new products:

Product	Improvement	Price
Indy R5000 workstation	Mips R5000 processor gives performance boost over previous models with R4400 chip	$8,495 (starting price)
Indigo2 Impact 10000 workstation*	Mips R10000 processor gives performance boost over models with R8000 chip	$34,000 (starting price)
Challenge L and **XL** servers**	Models contain two or more Mips R10000 processors that give performance boost over models with R8000 chip	$88,800 (L server); $138,800 (XL server)
Power Challenge server*	Improved scalability – up to 36 processors. R10000 processors boost performance.	$88,800 (two-processor model)
Infinite Reality 3-D graphics system (for Onyx and Power Onyx computers)*	Two-processor rendering engine for 3-D graphics up to 100 times faster than previous Reality systems.	$198,000

*Available in second quarter
**Available in March

Sources: Silicon Graphics, Inc., Mountain View, Calif., and International Data Corp., Framingham, Mass.

Microsoft spruces up SMS for NT push

Server will gain remote management SNMP links in late '96

By Bob Francis

As Microsoft Corp. gears up to push Windows NT and BackOffice into the enterprise, the company is updating its Systems Management Server (SMS) with remote management features and links to SNMP network management platforms.

Microsoft this week will announce features that will be included in Version 1.2 of SMS. The product is scheduled for release in the second half of the year.

Key for users will be remote management support for Windows NT and the ability to monitor SMS alerts from Simple Network Management Protocol (SNMP) network management consoles, such as Hewlett-Packard Co.'s OpenView and IBM's SystemView.

The new features may not provide a clear indication of Microsoft's direction for SMS, but they answer users who have requested these features.

Some corporations use NT as both a client and server operating system. They need SMS to support the remote management capability that exists for Windows and Windows 95, said Waverly Deutsch, an analyst at Forrester Research, Inc., a research firm in Cambridge, Mass.

Users demanded it

Users have been especially vocal about this improvement.

"They've been hearing from a lot of us," said Larry Shaw, PC coordinator at Nordstrom, Inc., a Seattle-based retail chain. "I think Microsoft wanted to get the word out that they are going to have this feature in an upcoming release." Nordstrom uses SMS on its network of 80 servers and 3,000 nodes.

But even companies that deploy Windows 95 can find an advantage in the addition of remote Windows NT management.

Gary Darby, a network design manager at Pennzoil Co. in Houston, said most of his clients are moving to Windows 95. "But it's good to know the feature is there, so we can do 'lights out' operations with our NT servers," he said.

The new release also provides an SNMP component for firms with SNMP management consoles. Systems administrators will be alerted about critical events, such as a hard-disk failure, on NT systems from their SNMP consoles. But network managers will have to use the SMS console to manage the event.

Shaw said adding bare-bones network management functionality to SMS will help integrate the server software with the company's Sun Microsystems, Inc. NetManager console. "It will give the managers an indication of a problem on the systems, which helps," he said.

SMS offers some tools similar to those from network administration and system utility vendors such as McAfee Associates, Inc., Intel Corp. and Symantec Corp. But it doesn't offer certain product features the rivals provide, such as software metering.

Still, Microsoft has an advantage in bundling SMS with Windows NT Server and BackOffice. And while it continues to add features to SMS, other LAN tools vendors have been building bridges to SMS.

> "It's good to know the feature is there, so we can do 'lights out' operations with our NT servers."
>
> *— Gary Darby, network design manager, Pennzoil*

Boole & Babbage debuts systems management software for NT. See page 50.

Keeping up with the Joneses

Microsoft is adding features to its Systems Management Server to stay competitive in the systems management market

	Software audit library	Windows, Windows 95 and Windows NT remote access	Software distribution	Software metering	Price
Microsoft Systems Management Server Version 1.2*	4,500 titles	Yes	Yes	No	To be announced. Current price is $649 for a server license, $50 for each client.
McAfee Associates Sabre LAN Workstation	4,500 titles	Yes	Yes	Yes	$47,300 for 1,000 users
Symantec Norton Administrator for Networks	4,500 titles	Yes	Yes	Yes	$44 per node for 1,000 or more nodes.

*Shipping in second half of the year

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Single-fee licensing

Microsoft induces Windows migration via payment plan

By Stuart J. Johnston

In an effort to get the ball rolling with corporate customers, Microsoft Corp. is giving some users the chance to pay a single license fee up front, regardless of whether they pick Windows 95 or Windows NT.

The "Windows 32-bit Family Maintenance" plan lets users switch between the two operating systems. It also entitles them to free upgrades of those systems during the next two years. The fee will vary, depending on how many desktop systems are involved.

Cost savings

For corporate customers who don't already have licensing and maintenance agreements with Microsoft, it would cost about $230 per user for the highest-volume corporate maintenance plan of 10,000 or more PCs, said Bob Vellone, general manager of organizational customer licensing at Microsoft.

Previously, Windows and NT weren't covered under a single maintenance plan. The cost of switching from Windows to NT was the same as buying NT for a new machine.

"We already have a [license] program [that includes] Windows 95. We could put it on every workstation, [but to deploy] NT we would have had to pay for it," said Peter Bavoso, vice president of information systems at Darby Group, Inc., a medical, dental and veterinary products distributor in Westbury, N.Y. The new maintenance plan may help the company decide what to do, he said.

The plan covers system upgrades to Windows NT 4.0, which will add the Windows 95 user interface to NT. It is due by midyear. The next major upgrade of NT (code-named Cairo) and Windows 95 (code-named Nashville) in 1997 also will be included in the flat-fee plan, said Paul Maritz, senior vice president of systems at Microsoft.

Microsoft customers who already have maintenance plans will be able to upgrade to the new flat-fee approach for about $100 per user, a Microsoft official said. For example, if Bavoso's current plan still had the full two years to run, he could upgrade his users to NT for about $100 per user.

The new maintenance contract costs more per user for companies that plan to adopt only Windows 95 on the desktop. But the cost savings may be considerable for corporations that plan to gradually move to Windows NT (see chart). Users can still buy maintenance contracts just for Windows or Windows 95; these would cost about $130 per user in the high-volume 10,000-user example.

"It's good that we can move between Windows 95 and NT," but the option isn't likely to cause a re-examination of company plans to deploy Windows 95 on most user PCs, said Jim Lisiak, senior software engineer at Chevron Information Technology Co. in San Ramon, Calif. Chevron plans this year to install Windows 95 on about 60% of its approximately 25,000 desktops.

19M copies

Users bought 5 million retail copies of Windows 95 and 12 million PCs with Windows 95 installed in 1995. Another 2 million licenses have been sold, according to Microsoft.

Window shopping

The following upgrade prices apply to users of Microsoft's Select Variable C licensing plan, which is the company's highest-volume purchase plan

System	Price per user	Covers
Win32	$230	Windows 95 or Windows NT, plus any updates for two years
Windows 95	$130	Upgrade to Windows 95 and two years of upgrade maintenance
Windows NT Workstation	$315	$185 upgrade to Windows NT Workstation, plus $130 for two years of upgrades (under previous plan)

Companies mix NT Server and NetWare. See page 57.

The coming Centura

Gupta's new Centura, a 32-bit visual 4GL that supports distributed development, will include the following:

- The ability to generate Internet applications
- A development system for 32-bit Windows 95 and Windows NT applications
- The ability to publish databases on the Web (in the second quarter)
- Support for application partitioning (in the third quarter)

Gupta readies visual 4GL tool

By Frank Hayes

Hoping to attract corporate systems developers who need to split high-end applications among multiple computers, Gupta Corp. last week unveiled the long-awaited 32-bit successor to its SQLWindows visual development system.

Gupta's new $4,995 Centura runs all existing SQLWindows code and adds the ability to generate applications that run on the Internet. Centura also sports an improved object compiler and team programming features. Data replication is provided by an add-on module called Centura Ranger that costs $495 per user.

Development platforms

But most important, Centura lets developers move part of an application from a PC to a more powerful application server — a capability that high-end users are starting to demand for performance reasons.

"As we've tried to scale up major SQLWindows applications to 1,500 users, the No. 1 concern is performance," said Randy Allen, a senior systems analyst at Illinois Power Co. in Decatur, Ill. Those large applications currently require powerful PCs, while the large amounts of data being moved tax networks to their limits. Splitting up applications and using transaction monitors to direct data traffic should help that problem, Allen said.

The ability to easily partition applications into three tiers — a PC-based client, an application server and a database server — will make Centura appealing for projects larger than SQLWindows could handle, said Judith Hurwitz, president of Hurwitz Consulting Group in Newton, Mass.

Home run needed

Gupta needs that boost in the wake of two years of financial losses and heavy competition from Microsoft Corp.'s Visual Basic and Powersoft Corp.'s PowerBuilder, for which partitioning capabilities are planned this year.

"That low end of the market is a real ghetto. [Gupta is] sitting between Microsoft on one hand and PowerBuilder on the other," Hurwitz said. "Now they'll be competing against Forte [Software, Inc. in Oakland, Calif.] and Dynasty [Technologies, Inc. in Naperville, Ill.]," two smaller companies that offer high-end client/server development tools.

Gupta will ship Centura in March, but support for partitioning won't come until sometime in the summer, the company said.

But the partitioning capabilities aren't Centura's key feature for all SQLWindows users. "For us, integration with the Internet is the biggest plus coming out of this," said Jim Hutton, assistant business systems supervisor at Ontario Hydro, an electric utility in Pickering, Ontario, which plans to use Centura for providing information to the public.

HP prices Unix server to snare Sun customers

By Michael Goldberg and Bob Francis

Hewlett-Packard Co. this week is outfitting its new entry-level Unix systems as World Wide Web servers with prices designed to steal Internet-related business from Sun Microsystems, Inc.

The HP 9000 D class server, introduced last week as a departmental and workgroup commercial system, comes Internet-ready with Web-friendly features such as Netscape Communications Corp.'s Commerce Server software [CW, Jan. 22]. Netscape's Commerce Server was designed to handle secure transactions over the Internet using encryption techniques.

The single-processor version of the Web server costs $12,200. Jeff Ziff, an HP product manager, said Palo Alto, Calif.-based HP will offer discounts to customers who trade in Sun or Silicon Graphics, Inc. Internet servers.

The HP 9000 D class server uses the HP-UX version of the Unix operating system and one or two PA-RISC processors.

But no vision?

HP is trying to catch up with vendors such as Sun that have generated a lot of Internet-related business, analysts said. But this announcement was unexpectedly lacking a future vision for the company's overall Internet strategy, said Steve Auditore, president of Zona Research, Inc. in Redwood City, Calif.

"HP made an interesting case as to why someone should buy an HP Unix server but not why people should think of HP" as their Internet vendor, Auditore said.

Aside from its Unix line, HP is trying to bring its Intel Corp.-based PC servers to the Internet in the second quarter, company officials said.

HP's plans call for offering Pentium Pro-based systems preloaded with LAN and WAN cards and drivers. The systems will target small businesses and selected Internet service providers.

Java finally ready to pour

By Frank Hayes

It took months to brew, but Java finally is ready, Sun Microsystems, Inc. said last week. Sun's JavaSoft division officially released its Java programming language for Internet application development.

Java 1.0 can be downloaded in versions for Windows 95, Windows NT and Sun's Solaris version of Unix for free. A Macintosh version will be available by March from Sun, and IBM is porting the language to Windows 3.1 and OS/2.

The Java language was designed to create programs that can be downloaded and used on any computer that has a Java-enabled World Wide Web browser, such as Netscape Navigator 2.0 from Netscape Communications Corp. or Sun's HotJava.

Centura percolates

Gupta Corp. last week said its new Centura development system, the successor to SQLWindows, will not only let users create Java applications, but it also will adopt the Java bytecode as its internal coding system.

The official Java release — which developers can download from http://java.sun.com — includes a compiler, a viewer for running and testing Java programs, and class libraries for graphics, audio, animation and networking. But this version won't look much different to developers who have been using recent beta versions of the software for months.

"We're up to our noses in one major application right now, and we're encouraging our developers to use Java for small projects internally," said Rick Brennan, manager of Web services at National Semiconductor Corp. in Santa Clara, Calif.

National Semiconductor's major application, which will let customers search quickly through 30,000 electronic component products using a Web browser, has been under development for several months and will go live within weeks, Brennan said.

Printing giant R. R. Donnelley and Sons Co. in Chicago has created a prototype of a Java application that will allow customers to send material they want to have printed to Donnelley. The company already has a Web site, but Java would give customers more direct access to work during all stages of production.

"Our system needs a way to get fed, and Java's a beautiful way to feed it," said Tom Boos, vice president of information technology at Donnelley's Coris division.

Other corporate information systems shops are beginning to look at Java as well, but most aren't talking about it — at least not yet. "We're using Java, but we consider it a competitive advantage," said the information technology director at a major Midwestern manufacturer who asked not to be identified. "We're not about to wave a flag so our competitors will know about it."

IRS developers take it on the chin. See page 51.

About Java 1.0

What it is: An object-oriented programming language that is similar to a simplified version of C++

What it's for: Writing applications that can be delivered and run using Web browsers

Why it matters: Lets developers create small programs that can be delivered through the Web and run without changes by Windows, Macintosh and Unix users

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American's Sabrenet gets its wings

Airline's information technology unit to completely outsource data network

By Patrick Dryden
FORT WORTH, TEXAS

After building one of the world's largest data networks, the information technology division of American Airlines is ready to unload the responsibility on someone else.

Sabre Computer Services announced plans last week to completely outsource Sabrenet, an X.25 network that links some 22,500 sites in the U.S., Canada and Caribbean.

A seven-year deal worth more than $400 million will put control of Sabrenet in the hands of SITA Group (Societe Internacionale de Telecommications Aeronautiques), a Paris-based data services provider whose 60,000-site network spans 220 countries.

"We're in the same situation now with data networks that we reached with voice networks. It makes economic sense for us to partner, not do it ourselves," said Terry Jones, president of Sabre Computer Services, based here.

The shift will save an undisclosed amount related to upgrades for frame-relay links and the ongoing cost of engineering and managing increasingly complex technologies, Jones said.

Users typically save 10% to 20% on operations and transfer risks by outsourcing some or all network control, according to Traci Bair, program manager for network integration and support services at International Data Corp. in Framingham, Mass.

"Our network is strategic, but we don't have to own it."
— Terry Jones, president, Sabre

The trend to turn over networks to experts who can keep up with rising complexity by applying their own research and development and staff makes sense, Bair said. However, "few large organizations so far have fully outsourced their networks." Most prefer to selectively outsource specific functions such as Remote Monitoring to maintain a high degree of control over a resource as strategic as a network, according to Bair.

"Our network is strategic, but we don't have to own it," Jones said. No one offered the expertise required to operate an X.25 network of such scope five years ago, when the Sabrenet expansion and standardization project began, he said. But now SITA and the large carriers are up to the task.

SITA will boost Sabrenet bandwidth for airports and travel agencies through its frame-relay connections and extend its reach throughout North America, according to officials of both companies.

Scitor, the commercial services arm of SITA Group, provides network services worldwide to corporations, including airlines, hotel chains and financial institutions.

Eli Lilly relies on Remote Monitoring. See page 69.

Adding applets to Notes may undercut SmartSuite

Lotus says component object family will hit Office suite harder

By Tim Ouellette
ORLANDO, FLA.

Piece by piece, Lotus Development Corp. is blending into Notes some of the features normally found in PC software suites.

At its Lotusphere '96 conference here last week, the company unveiled a set of component objects — including a minispreadsheet — that can be inserted into Notes documents. The IBM subsidiary also integrated the calendaring feature from its Organizer software into Notes 4.0 to permit group scheduling.

Officials at Cambridge, Mass.-based Lotus acknowledged that the Notes-embedded software components may cannibalize some SmartSuite sales. But they argued that Microsoft Corp.'s Office will take the bigger hit.

They claim Notes and SmartSuite are much more integrated, providing data access and conversion features between the two; integrating Office with Notes would be more cumbersome. Yet some vendors, such as Brainstorm Technologies, Inc. in Cambridge, Mass., are already selling tools that improve Notes/Office integration.

The Notes software components, which will offer a subset of features found in desktop suites, could give users more reasons to forego the large and often-unwieldy suites.

"Often users take advantage of only 10% of the functionality of a word processor," so mini-applications may be sufficient, said Gerry Murray, an analyst at International Data Corp. in Framingham, Mass. "And 90% of the productivity of a document is when it actually leaves the desktop," where users collaborate and use the document as part of a business process with Notes.

The components are OLE custom controls written as extensions to Notes. They can be placed on other OLE-compatible applications, although the components won't be able to take advantage of the built-in Notes integration features.

The calendaring and scheduling features of Organizer will be stored in a user's Notes mail database and show up as a calendar folder.

Information systems managers like the idea of using software components to help users stay with one familiar user interface environment.

"We will certainly look at components," said James Wilcoxon, vice president of Paddock Swimming Pool Co. in Rockville, Md. The company has already created a large Notes application that launches SmartSuite spreadsheet and word processing documents. He said the components wouldn't be suitable for large spreadsheet files, though.

Many customers would like to see Lotus focus its component plans on other platforms, such as Unix, OS/2 and the Macintosh. Because they are based on Microsoft's OLE, the components will work only with Windows 95 and Windows NT operating systems.

"The [Notes] components are based on the wrong platform — OLE," said Stowe Boyd, principal at Work Media, a Herndon, Va., consultancy. In his view, Lotus eventually will have to scrap OLE-based components in favor of other technologies, such as the multiplatform Java development language from Sun Microsystems, Inc.

A bigger piece of the pie

Lotus is trying to give SmartSuite a boost by announcing bundling agreements with PC makers AST Research, Inc., Epson America, Inc. and IBM. Lotus wants to own 25% of the desktop software market by the end of this year.

Notes

CONTINUED FROM PAGE 1

to users and a player in mission-critical processes. This is especially important for Notes sites that want to make the package more of a strategic investment in their enterprise network.

"This should have been done from day one," said David Marshak, an analyst at Patricia Seybold Group in Boston.

"We have been a little beaten up by enterprise customers" in the transaction area, acknowledged Alex Niehaus, manager of marketing for communications products at Lotus.

"Notes is now really becoming a strategic platform that collects, stores and maintains enterprise data," said Alan Baren, manager of strategic technology at Coopers & Lybrand in New York. Lotus must address this on an enterprise level, he said.

To make sure users have the most up-to-date Notes data, Notes will support clustering of up to six Windows NT-based Notes servers, which will provide automatic switchover if one server is down. Clustering support will be a part of the Lotus Notes Public Network, software that will ship in February and that helps run public Notes networks such as AT&T's Network Notes.

No delivery dates were provided for adding clustering to corporate versions of Notes, but development is in the works, said Brian Bell, director of technology at Lotus' interenterprise communications group.

The high availability of clustering Notes servers will also make life easier for large corporate Notes networks.

"If you lost a server for 100 people, it would be a problem," said John Schulz, project manager at US West Management Information Systems, Inc. in Englewood, Colo., which has about 5,700 Notes users. But with Notes 4.0's improved scalability, the possibility looms that a server for 1,000 users could be lost.

Clustering could also cut back on the high costs of running Notes 3.x installations and the many servers they require, Schulz said. He estimates that Notes support costs about $200 per user at US West. But with lower Notes pricing and the ability to scale more users on one server and employ two clustered servers, Schulz estimated the cost could drop by almost half — to about $120 per user.

The improvement of the MQSeries middleware link for Notes should prove important for interenterprise applications because it provides a way for Notes applications to communicate directly with back-end transaction systems such as IBM's CICS.

MQSeries Link has been improved to include bidirectional support for moving Notes data to a transactional system and moving transaction results to Notes. It will ship by the middle of the year.

IBM plans to integrate MQSeries with NotesView administration software, said Steve Craggs, senior manager for MQSeries. The firm provided no time frame for the addition of this feature.

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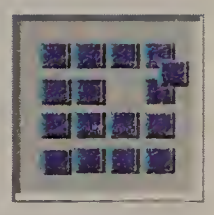

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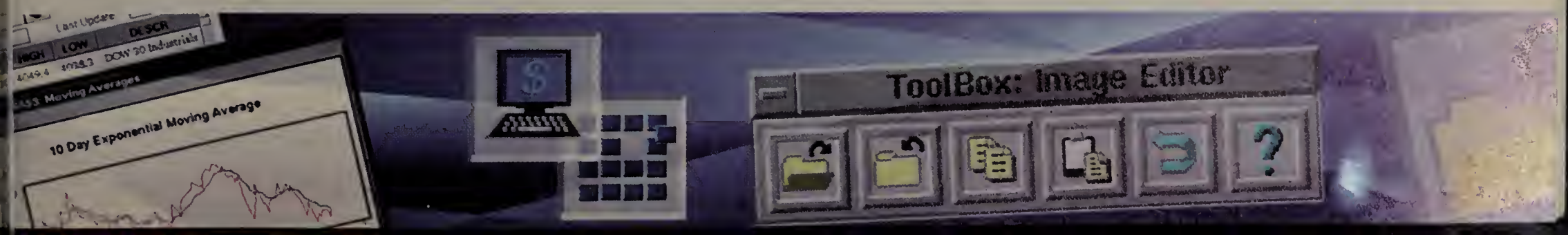

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Computer Systems

Client/server apps make leap to Web browsers

QuickServer leverages traditional application development on the Internet

By Mitch Wagner

Wayfarer Communications Corp. today will unveil software that lets users write their own custom client/server applications and run them inside Netscape's Navigator or Microsoft's Explorer browsers on the World Wide Web.

QuickServer combines the functionality of client/server technology with the flexibility of a TCP/IP network. Users can write applications in C++, Microsoft Corp.'s Visual Basic, Sun Microsystems, Inc.'s Java or Powersoft Corp.'s PowerBuilder.

Companies will be able to use QuickServer to deploy applications to salespeople in the field and to suppliers, contractors and other business partners.

QuickServer can also be used to build custom applications for consumers and to create internal company front ends for on-line services that run on the Internet.

For instance, PC Quote, Inc. uses QuickServer to develop an on-line service that offers stock quotes live on the Internet. It uses a graphic that simulates a stock ticker crawl on the bottom of the page.

Luke Crofoot, marketing services supervisor at 3M Co. in St. Paul, Minn., said QuickServer could fill a significant need for his company.

"We're looking for software that links to our back-end legacy databases, providing an easy-to-understand front-end tool [such as] a browser," he said. "That will be very attractive to different areas of the company."

The Wayfarer technology lets an information systems staff use its traditional application development skills on the Internet, said Nate Zelnick, an analyst at Jupiter Communications, Inc. in New York. "All of a sudden, you've got this cheap worldwide network to run your [applications] on," he said.

Indeed, the plan is to take client/server technology "out of the company headquarters and large regional offices and [put it] onto the Internet," said Edward E. Colby, chairman and CEO of Wayfarer in Mountain View, Calif.

Speeding it up

The software runs several times faster than Web applications because it doesn't actually run on the Web, Colby explained.

Rather than use the standard Web protocols and languages throughout a session — Hypertext Transport Protocol (HTTP) and Hypertext Markup Language — the user instead contacts a QuickServer server that uses HTTP. The client software then launches a session using a proprietary protocol that runs on the Internet.

The client software runs inside a window of Netscape Communications Corp.'s or Microsoft's browsers, using their "plug-in" technology for third-party applications.

QuickServer is available immediately and costs $499 for a developer's kit. The runtime server costs $5,000 and includes 10 runtime clients. Each additional client costs $100. The client software runs on Windows 95 and Windows NT. Windows 3.1, Macintosh and Unix versions are due in the second quarter.

& **A Canadian government** agency jumps onto the Web. See page 72.

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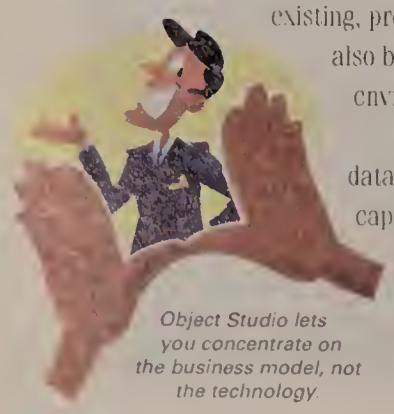

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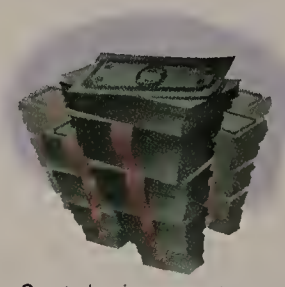

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Object Studio provides visual, drag-and-drop mapping of objects in the business model to tables in a relational database, in addition to insulating your business model from changes in the database. Constructing applications with modular objects means that changes and modifications can be easily made without affecting other parts of the application, significantly reducing maintenance costs.

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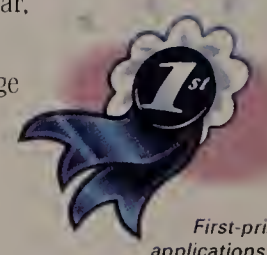

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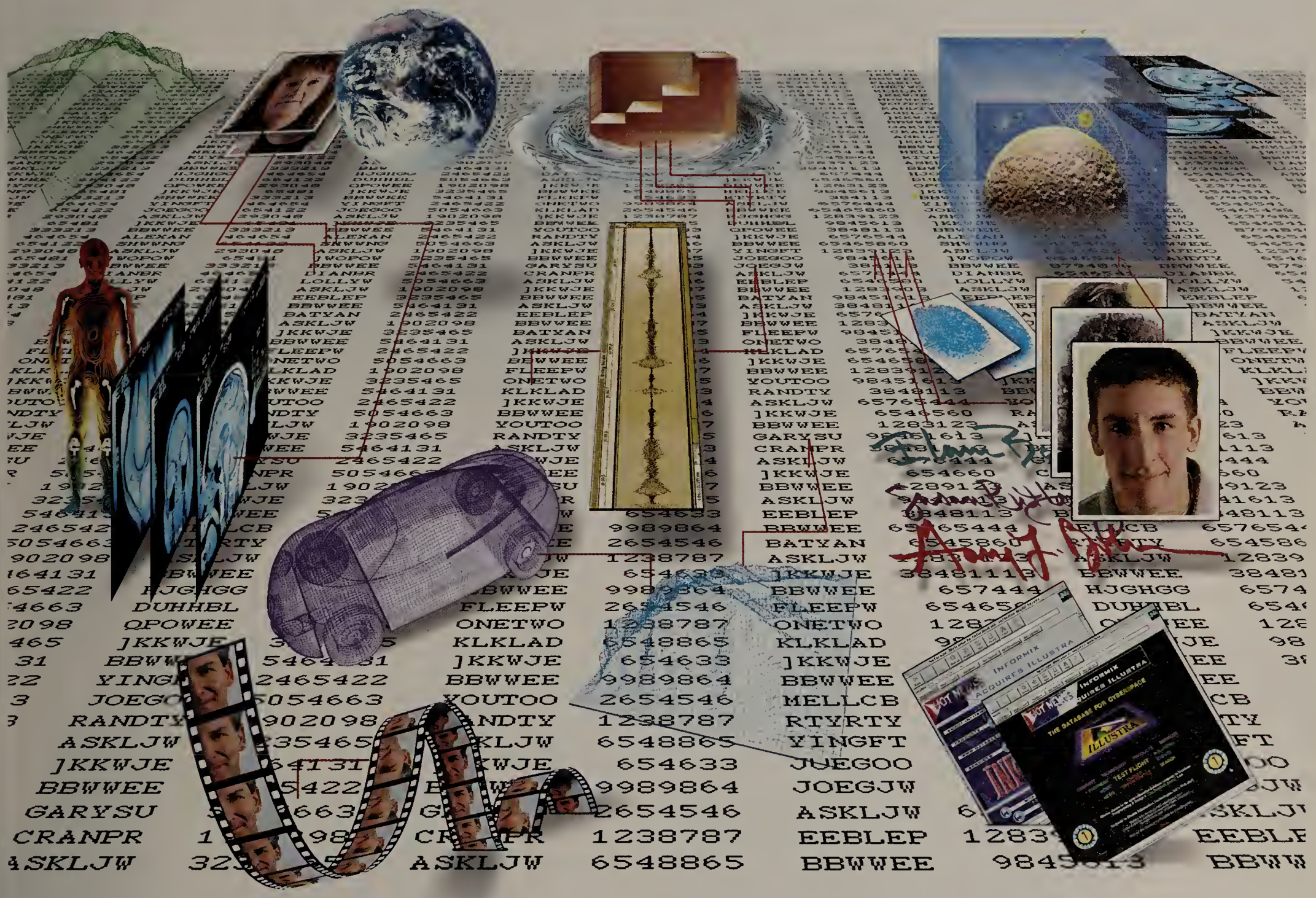

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WHAT THE BIG GUYS USE

Users push for Internet document access

By Suruchi Mohan

Document management vendors have been quick to point out the importance of the World Wide Web.

And they are in sync with users, who say it is important to have access to their document repositories over the Internet. All they need is a browser, users said.

Picking up on that cry, Interleaf, Inc. in Waltham, Mass., last week unveiled Intellecte/Business Web, which provides easy access to documents via a Web browser.

And Documentum, Inc. in Pleasanton, Calif., last week announced Accelera, which lets users navigate and query Documentum's document repository with a Web browser.

"Companies are acting on user demand," said John Borger, software support analyst at Allen-Bradley Co., a factory automation products company in Milwaukee. Borger uses Interleaf's document management system. "I beat them up many times on why they didn't have a product that could access documents via the Web."

"I've seen an increasing number of companies going to document management [options] or building large repositories," said David Yockelson, vice president of Meta Group, Inc. in Stamford, Conn. "For companies doing more [with internal networks], there is the realization that the Web server is the least common denominator for document management," he said.

Document management

Frank Gilbane, director of CAP Ventures, a consulting company in Marshfield, Mass., said the need for these systems is twofold: "If you have a document repository with document management, the idea of using a Web browser to access information is very appealing," he said. "You can devise ways to give information very easily."

Second, a large number of companies are building Web pages. These documents are complex because they contain links and are prone to frequent changes.

Gaining access

These products can help you access documents over the Internet

Vendor/product	Announced
Information Dimensions WebServer	April 1995
Novasoft Systems NovaWeb	January 1996
Saros @Mezzanine	November 1995

Cost certainly is another factor. Buying a complete document management system was expensive but buying the browser wasn't, said Michael Howard, senior software engineer at Storage Technology Corp. in Louisville, Colo.

Howard said he invested $1 million in a document management system but spent less than $50,000 on the Web piece. Moreover, the low cost of Web technology allows a company to give more users access to document management.

Jim Bair, research director at Gartner Group, Inc. in Santa Clara, Calif., agreed. "The Internet is beginning to look like an effective, least-cost option for network architectures," he said. "Internet technology via the Web is absolutely first class because it gives a systematic way of linking together any file anywhere on the network."

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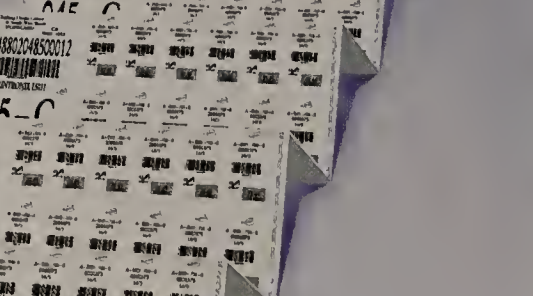

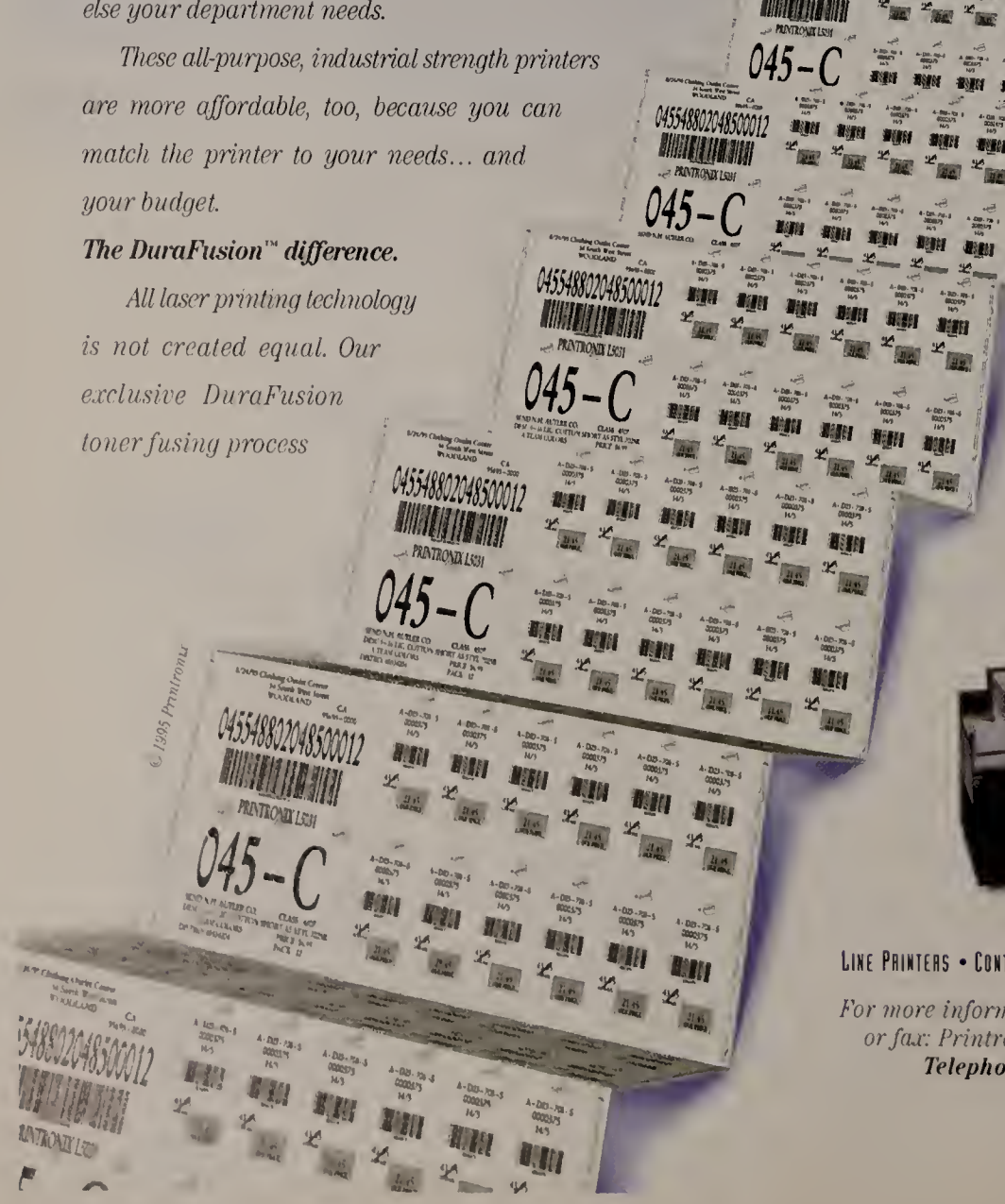

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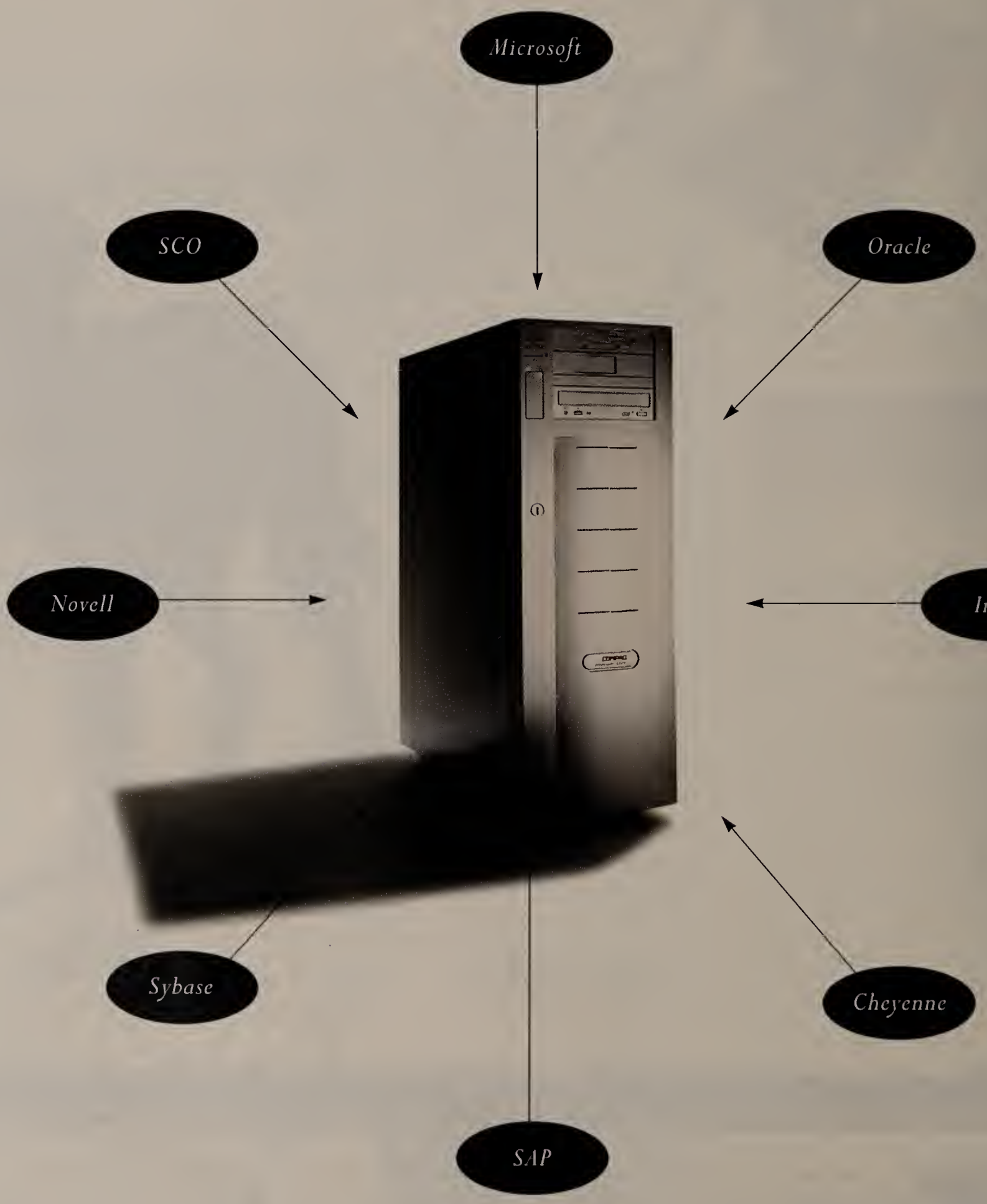

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You see, they may be Compaq servers. But they are Compaq-Microsoft-Oracle-SAP-Intel-Novell-SCO-Sybase-Cheyenne solutions. (We just couldn't fit all those logos on them.)

COMPAQ

Has It Changed Your Life Yet?

A switch in time

Analysts' sober predictions are expected to deflate ATM hype

By Neal Weinberg

ATM bigots may find this week's ComNet '96 a bit bracing. That's because industry analysts are expected to throw cold water on the rapidly overheating ATM hype.

The latest market research projections show sluggish growth for Asynchronous Transfer Mode (ATM) in the wide-area network market in 1996. And from the long-range picture they paint, ATM might as well stand for After The Millennium.

"The market has not taken off as quickly as some people expected," said Rosemary Cochran, an analyst at Vertical Systems Group, Inc. in Dedham, Mass.

At the end of last year, Vertical counted only 72 U.S. customers for ATM, and the vast majority of those were power users with atypically large data requirements.

Cochran said since 75% of frame-relay data traffic moves at only 56K bit/sec., market demand for a technology that moves voice, data and video at 45M bit/sec. simply isn't there among mainstream commercial organizations.

Frame relay on top

Vertical predicts that ATM revenue in the U.S. from both equipment and services will slowly ramp up, from $111 million last year to $246 million this year and to $707 million by 1998. But ATM revenue pales before frame relay, which racked up $1 billion in revenue last year.

Caroline Robertson, an analyst at International Data Corp. in Framingham, Mass., will tell a similar story during her ComNet briefing. She predicts "no dramatic growth" for ATM this year.

Robertson said ATM will have "niche appeal" for users looking to integrate data and video into one network or users with heavy data requirements.

Michael Smith, an analyst at Datapro Information Services Group, Inc. in Delran, N.J., said he doesn't expect to see widespread adoption of ATM until "1999 at the earliest."

"The reality is that frame relay is a much better choice for most businesses," Smith said.

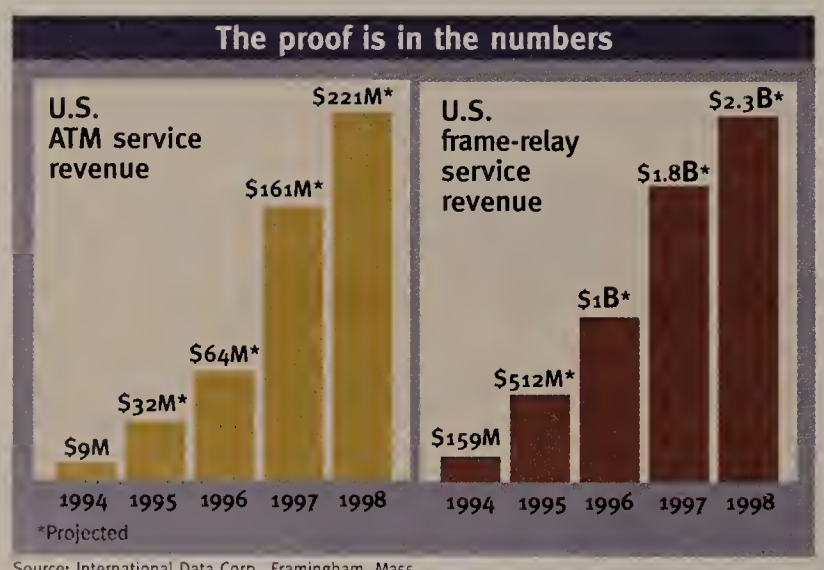
The recent availability of low-speed ATM and frame-relay-to-ATM interworking may give ATM "a little jump start," said Beth Gage, an analyst at TeleChoice, Inc. in Verona, N.J.

But Gage said the vast majority of user needs will be met by frame relay and Integrated Services Digital Network (ISDN). "Frame is always going to be a better fit for data applications," Gage said. And ISDN is a relatively inexpensive videoconferencing approach.

Cochran added that ATM adoption has been slowed by a number of factors, including the lack of industry standards and limitations on equipment.

But the prime reason ATM hasn't taken off is that most users simply don't need the bandwidth ATM provides, Gage said.

The proof is in the numbers



Source: International Data Corp., Framingham, Mass.

ODS offers up a wide variety of low-cost, high-density modules for high-end hubs

By Bob Wallace

Optical Data Systems, Inc. (ODS) is expected to announce at ComNet this week a wide array of LAN switching modules for its Infinity hub. These will give users an alternative to 3Com, Cabletron and Cisco for high-end switching hubs.

LAN switching in high-end hubs lets network managers break up bandwidth bottlenecks in backbone networks and lets managers give individual users their own dedicated capacity.

The ODS Warrior modules offer low-cost, high-density Ethernet, Token Ring, Fiber Distributed Data Interface (FDDI) and Asynchronous Transfer Mode (ATM) modules for the firm's high-end, 12-slot Infinity switching hub.

With the delay in shipment of Bay Networks, Inc.'s System 5000 LAN switching wares [CW, Dec. 18], analysts and users said ODS could strengthen its competitive position against heavyweights 3Com Corp., Cabletron Systems, Inc. and Cisco Systems, Inc.

"ODS products are high quality and stack up well [in price and performance] against the big boys," said Blair Sanders, a senior member of the technical staff at Texas Instruments, Inc. in Dallas. "ODS has got integrating different switching technologies in a single form factor and under a common management [scheme] down to a science."

Charlie Robbins, president of Aberdeen Group, Inc., a consultancy in Boston, said, "The Infinity stacks up very well against a [3Com] LANplex 6000 or a Cabletron MMAC-Plus. ODS has done an excellent job integrating different [LAN] switching technologies in the Infinity."

According to ODS pricing, users will pay about $870 per switched Ethernet port, $2,160 per switched Token Ring port, $2,000 per switched FDDI port and $8,000 per ATM port.

In an effort to drive the high-speed switching technology to the desktop, ODS offers for $7,200, or $600 per port, a 12-port ATM module that supports switched 25M bit/sec. connections.

Some of ODS modules don't have as many ports as models from Cabletron. But unlike Cabletron and Cisco, ODS is shipping Token Ring and ATM switching in its high-end switching hubs.

"ODS is a different breed of cat," Robbins said. "Where other vendors such as Cabletron develop their switching technology internally, ODS has pulled together technology from many outside sources and is therefore a master integrator."

Sanders agreed. "ODS does this quickly, whereas Cisco and Bay [with Centillion] seem to take longer to to integrate [outside] products into their architecture and management system."

Other ComNet previews. See page 57.

Road warrior

Optical Data Systems plans to ship the following LAN switching modules for its high-end Infinity hubs

Module	Number of ports	Price
Switched Ethernet	8	$7,000
Switched Token Ring	6	$13,000
Switched FDDI	8	$16,000
ATM	2	$16,000

Electronic organizer in store

Palm Computing wants to put its device in the world's hands

By Mindy Blodgett

Is the world clamoring for an electronic organizer?

The Palm Computing division of U.S. Robotics, Inc. in Los Altos, Calif., thinks so. Palm Computing this week will announce Pilot, a line of handheld electronic organizers designed to connect to desktop or laptop computers. The company plans to ship the units in March.

Priced at $299, Pilot automatically synchronizes its information with a PC or PC LAN, comes with Windows or Macintosh-based software and runs on the Palm operating system.

Andrew Seybold, an analyst and editor of the newsletter "Outlook on Communications and Computing" in Boulder Creek, Calif., called the device "interesting," but he questioned whether there is a large market for an electronic organizer such as Pilot.

"It's cute; it's essentially a pocket Day-Timer," Seybold said. "But it has no space for a PC card at all, no provision for any keyboard. I don't know if that is the direction organizers should be going in."

Mobile announcements slated for this week include the following:

- MicroModule Systems, Inc. in Cupertino, Calif., today will announce Spectrum CPU Modules — the first multichip module for notebooks. The module was designed to help bring desktop performance to notebooks by putting seven chips — including an Intel Corp. Pentium processor, a full Peripheral Component Interconnect chip set and 256K bytes of L2 cache — into one module.

The module supports multiple CPU clock rates, chip sets and cache configurations without leading to chassis redesign, thereby shortening the time to market, company representatives said. By using aluminum instead of traditional substances such as plastic, the module should be about 10 degrees cooler than traditional integrated circuits.

That is important because notebook designers have had difficulty taking the faster chips now used in PCs and putting them in laptops, since the higher heat causes a breakdown.

"They are much closer to a solution [to] the heat problem in notebooks," said Martin Reynolds, an analyst at Dataquest, Inc. in San Jose, Calif. "It's an offbeat solution, but it seems to work."

- Geoworks and Ericsson, Inc. officials said they have reached an agreement to develop a "smart phone" — a device combining cellular telephones with data transmission capabilities.

Ericsson will use Geoworks' Geos operating system.

The smart phone market is expected to heat up this year. Geoworks has already started working with Nokia on a smart phone, and Sony Corp. is developing one as well.

Is there ever a

good time

to upgrade your operating system?

Finding the perfect time to migrate
is like finding the perfect time to mow the lawn.
However, finding the perfect reason is easy: value.
Upgrades have value insofar as they deliver dramatic improvements,
improvements that outweigh the cost of deployment.
With the Microsoft® Windows® 95 operating system
that value is demonstrable. And in what follows, we'll show you how it,
and the 32-bit applications that run on it, can reduce your support burden,
increase your control over the desktop,
and improve the productivity of end users.
In short, we'll address the issues that tend to forestall serious evaluation.
We'll even go so far as to suggest that waiting has costs of its own.

Support for IS.

Support for system administrators begins with support for end users. With its simplified interface, Windows 95 allows users to work far more independently than in the past. Simply put, the greater their autonomy, the less time you spend answering obvious questions.

But it's not just the interface that's improved; the whole system is more reliable. Thanks to the 32-bit protect-mode components of Windows 95, users can run multiple applications at the same time, without running out of system resources or freezing-up their PCs. The same is true even if a network server goes down. And, with 32-bit applications now able to run in their own memory space, the likelihood of one app crashing another is almost nil.

Today, you can turn the desktop into the most tangible technology investment your company can make.

What's the upshot of all this? Well, it won't exactly turn you into the Maytag repairman, but it can cut helpdesk calls by 7 to 14% a year.[1]

Still, in designing a new OS, we realized that to make things easy for the end-user at the expense of the IS department would be self-defeating. And to that end, Windows 95 offers a variety of powerful tools to help you better manage your network and your time.

Built into Windows 95 are a number of tools to simplify administration. 32-bit versions of popular network clients, like Novell® NetWare® are included, as is support for standard transport protocols like TCP/IP and device standards. Plug and Play support detects hardware devices as they are added to the system, which makes installation a snap. And, with Server-based Setup and Batch Setup tools, it's now possible to install and configure Windows 95 on multiple desktops from a server. Automatically. Once you're wired, you can monitor performance and troubleshoot problems from a central location.

More support: more control.

System Policies in Windows 95 allow you to specify system settings and restrict network access and security privileges from a central location. So you can lock down desktop configurations whenever you see fit. And with User Profiles, individual users' desktop configurations are available wherever they log on to the network. This lets multiple users share one computer and "roving" users log on to other networked computers, while maintaining their own personal settings.

Again, with Windows 95, all of this can be done from a central location, reducing the number of on-site visits by 30 to 50%.[2] At last, you'll be able to focus on the big-picture stuff. So the next time someone asks you what's what with this Internet thing, you can say, *I have a plan.*

Productivity from the word *Start.*

The improved interface in Windows 95 makes nearly everything easier for novice and advanced users alike. Its Start button and task bar make applications more accessible. Long filenames make identifying files easier. Better tools such as Wizards and improved Help make learning features easy. Its right mouse button puts common commands a click away. And now that the separate Program Manager, File Manager, and Print Manager are gone, there are fewer concepts to learn. This makes for able, autonomous, and, dare we say, happy end users. People who require less training and support. Who, in short, can turn the desktop into the most tangible technology investment your company can make.

But Windows 95 isn't just easier, it's more responsive. Basic operations, like printing or accessing a file on a PC or over a network, are faster. And with its 32-bit multitasking capability, users can conduct file searches, online communications, or other tasks all while, say, editing a document. In fact, studies show that once users are familiar with the new OS, they're able to accomplish many tasks in about half the time it took under Windows 3.1.[3]

Of course, no one spends their entire day tooling around in their operating system. People have work to do. With that

1. WorkGroup Technologies, Inc., a market research firm, collected and analyzed the helpdesk logs of 10 Fortune 100 companies in order to project the impact of Windows 95 on call avoidance, problem resolution, and on-site call reduction. The logs represented 100,000 PC users and 1.5 million helpdesk calls per year. **2.** WorkGroup Technologies, Inc. **3.** To quantify the learning curve from Windows 3.1 to Windows 95, and evaluate user productivity on Windows 95, Usability Sciences Corporation, an independent usability testing organization, had 75 beginner, intermediate, and advanced Windows 3.1 users complete tasks with both operating systems. They found that users were 91% more productive with Windows 95, and 94% more accurate. Tasks performed included: finding and opening files and programs, copying and moving files, and switching between active programs. **4.** The MASIE Center, a recognized software training center and think-tank found that only one hour of briefing and two

The prevailing wisdom and why, this time, you should ignore it.

Common sense tells you to hold off on making the move to Windows 95, to wait until someone else finds the bugs. Well, someone else already has. With the largest beta program in history, Windows 95 was installed on more than a million desktops worldwide. Now, just six months into its commercial release, thousands of organizations are in pilot and rollout. And to keep them current, we've put together an online Service Pack with the latest drivers and other new components. In short, the dreaded "1.0 version" has already come and gone.

in mind, no evaluation of Windows 95 would be complete without simultaneously evaluating some of the 32-bit applications designed for it, such as Microsoft Office for Windows 95.

Now users can focus on their work instead of their software.

Office 95 is more than just fresh features on top of Office 4.x. It's a deeply integrated suite of applications. Integrated, both with the operating system and with each other. Because users can leverage their knowledge of one application throughout the entire suite, they need only three hours of training to be effective in all of them.[4] Needless to say, this can dramatically reduce training costs.

But what about support? While it's one thing to get PC users up and running, it's quite another to teach them all the skills they'll ever need. And of course, you can't; users simply aren't interested. (Remember? They've got work to do.) Knowing this has made all the difference in designing Office 95. It's resulted in advances such as the Answer Wizard, which lets users ask the computer plain English questions like, *How do I print sideways?*, and then shows them exactly how to do it. As a result, you can expect a 48% reduction in Office-related help calls.[5]

With Office 95, users are not only able to work on their own, they're able to accomplish more things faster. Labor-saving features such as updated AutoFormat and Spell-It in Word, and enhanced AutoComplete in Microsoft Excel, not only render everyday tasks automatically, they do so accurately. According to Kelly Services, the folks who train and supply corporations with over 325,000 temps each year, users complete their tasks 37% faster with Office 95. And they're 36% more accurate in doing so.[6] Not a bad day at the office.

Why sooner is better than later.

If, as the headline says, there's never a good time to migrate, why make the move now? Why? Because deployment takes time. Product reviews, network configurations, lab tests, pilot programs, rollout — it takes time. And if the goal is to decide *Is it worth it?* and you continue to put off serious evaluation, it'll be that much longer before you begin to realize the productivity gains and cost savings that Windows 95 and Office 95 have to offer.

But let's assume you upgraded today. How long would it take to recoup your migration costs? According to a leading consulting firm, Office 95 will pay for itself in 10 months in medium-sized companies, and 12 months in large organizations.[7] Factor in the increase in end user productivity, and those numbers fall by nearly half.

No question about it, the move to 32-bits is a big one. But as part of the larger evolution in chip architecture, hardware platforms, and application support, it's not one that you or Microsoft is making alone. Won't you join us?

Windows 95 or Windows NT? Yes.

If you've thought about bypassing an upgrade to Windows 95 and holding out for Windows NT™ Workstation, don't. Each has its own role within the corporation. In fact, the two are complementary, as many businesses require both to fulfill their far-ranging needs, be it equipping their sales force with laptops or running compute-intensive programs on their multi-processor systems.

How to start.

To receive a free copy of Trial 95 — including guides for evaluation and deployment, resource kits, feature reviews, and, of course, copies of both Windows 95 and Office for Windows 95, each with a 90 day license — call (800) 583-0042, Dept. A017. Or visit our Web site at www.microsoft.com. All the backup for the studies cited here is included, along with an ROI modeling tool so you can plug in your own numbers.

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WHERE DO YOU WANT TO GO TODAY?™

hours of self-discovery were required to migrate Office 4.3 users to Office 95. **5.** WorkGroup Technologies, Inc. **6.** Kelly Services, Inc. conducted a controlled usability study of 35 employees who regularly use Office 4.3. Participants were measured for speed and accuracy in completing commonly performed tasks. **7.** International Data Corporation modeled the expected returns on investment of Office 95 for large companies (1,000+ PCs) and for small-to-medium companies (100 PCs). On a cost-to-use basis, large companies will see their investment paid for in 12 months, small companies in 10. On a value-to-use basis, those figures drop substantially: 4.8 months for large companies, 5.3 months for small. © 1996 Microsoft Corporation. All rights reserved. Microsoft and Windows are registered trademarks and Windows NT, the Windows Start logo, and *Where do you want to go today?* are trademarks of Microsoft. Novell and NetWare are registered trademarks of Novell, Inc.

Computer Industry

Industry seeks end to crypto export controls

By Gary H. Anthes
WASHINGTON

A coalition of influential computer companies has called on the government to relax controls on the export of cryptographic products.

This is hardly new. Industry has beseeched the government repeatedly during the past several years to lighten up on export controls for cryptography, with minimal results so far.

But in this latest call for relief, the Washington-based Computer Systems Policy Project (CSPP) is taking a new tack.

The CSPP, which comprises CEOs from 13 major computer companies, argues in its latest report that software and data are "cyberproperty." And, just as with tangible property, users should have the right to safeguard cyberproperty by whatever means are available, including strong cryptography, the CSPP said.

Therefore, the government ought to permit the export of strong cryptographic products without restrictions unless it can clearly demonstrate a risk, the CSPP said in its report, "Perspectives on Security in the Information Age" (see story at right).

"If you walk up to a member of Congress and say, 'What's encryption?' they'll either say, 'I don't know,' or, 'Isn't that the Clipper chip?'" said Ken Kay, executive director of the CSPP. "But this report frames the issue for what it should be, which is a personal property rights issue."

"As the number of linked networks increases, individual and business owners will require effective encryption to safeguard their cyberproperty from vandals, thieves, industrial spies and terrorists," said Scott G. McNealy, CEO of Sun Microsystems, Inc. and co-chairman of the CSPP's working group on security, encryption and export controls.

Unisys Corp. CEO James A. Unruh: *Policy changes that reflect these recommendations will promote the legitimate use of security and address the government's concerns about law enforcement*

"Indeed, government and industry should be working together to protect government, industry and individuals from these vulnerabilities rather than struggling over the futile endeavor to control encryption," McNealy added.

The government refuses to allow the export of strong cryptography — techniques that use encryption keys longer than 40 bits — unless it includes a "key escrow" feature. That would allow the government, with a court order, to retrieve the key from an escrow agent and use it to decode an encrypted file or message.

Industry has complained bitterly about the restrictions, saying they leave it with weak security overseas. Industry also says the restrictions hurt the sales of U.S. encryption products and are pointless because strong encryption is available from foreign sources.

Likening computer information to tangible property might appeal to government officials who deal in export control issues. For purposes of export regulation, cryptographic products are treated as "munitions," subject to the same controls as bombs and bullets.

Tall order for Uncle Sam

The U.S. computer industry says the government should do the following:

- Link the decontrol of U.S. cryptographic products to the availability of competitive products in the international marketplace.
- Permit the export of strong U.S. cryptographic products — without technology restrictions or key escrow requirements — for legitimate commercial users unless the government clearly demonstrates a risk.
- Allow U.S. industry to design exportable cryptographic products with strong encryption that meet reasonable government access needs.
- Embargo U.S. cryptographic products to terrorist countries.

— Gary H. Anthes

Yin and yang of Mac clone makers

By Lisa Picarille

Macintosh clones from start-up Power Computing Corp. are selling like gangbusters, but rival Radius, Inc., another high-profile Macintosh compatibles maker, appears to be going bust.

Both companies signed worldwide Mac OS licenses with Apple Computer, Inc., but each has targeted a different segment of users, with a slight overlap on mid-range machines. Radius' high-end Macintosh clones are aimed primarily at video and graphics professionals; Power Computing has focused on delivering low-cost, general-purpose systems.

And so their fortunes, too, have taken divergent paths.

In the past year, Radius has faced a myriad of well-publicized financial problems that stem from its transition from a graphics board and monitor maker to a systems vendor. Its woes may have scared off some potential users.

"The Radius machines have been going down and down in price, but frankly, it started to look like a fire sale, so we didn't buy them," said John Papa, a partner at Carson Group, a financial services group in New York that has more than 100 Apple-built Macintoshes. "Radius has a pretty tough history, and that makes us a little leery about buying from them."

On the flip side, Papa said his company would have no problems purchasing Macintosh-type systems from Power Computing, which is selling a range of low-end and general-purpose clones.

"Power Computing looks like they are for real," Papa said. "The prices are good. The systems are compatible. They get good reviews. There seems to be a level of stability at the company. So I think we'll be comfortable bringing in a couple machines and giving them a test-drive."

Booming business

Power Computing, which shipped its first PowerPC Power Macintosh systems in August, said it is on track to sell about 56,000 machines in its first 12 months of business. That figure rivals units sold by Compaq Computer Corp. in its first year.

To further beef up business, Power Computing has expanded beyond its mail-order-only business into retail. And the Round Rock, Texas, company also is broadening its offerings. At Macworld Expo earlier this month, it unveiled a new line — PowerCurve Power Macintosh systems.

More proof of how well Power Computing is doing is a deal it recently signed with software giant Microsoft Corp., whereby Office for Macintosh will be bundled with selected models in Power Computing's PowerWave and PowerCurve lines.

This is the first time Microsoft has bundled its best-selling Office for Macintosh suite.

But Radius isn't giving up on the Macintosh clone market. Earlier this month, financial pressures forced the Sunnyvale, Calif., company to merge its Macintosh clone business with Umax Data Systems, Inc., a Taipei, Taiwan-based computer maker that holds a license to sell the Mac OS in Asia.

Radius and Umax have formed a separate company, called Umax Computer Corp., that will sell Macintosh clones in the U.S.

On-line forerunner GEnie sold after falling behind pack

By Mitch Wagner

GEnie, the tattered grande dame of on-line services, has been sold. General Electric Co. said it expects this week to close a deal to turn the service over to Yovelle Renaissance Corp. in New York.

Yovelle, a group of private investors, will continue to operate the service without interruption. It plans to move the content to the World Wide Web, said Doug Wolford, a spokesman for General Electric Information Services, Inc. in Rockville, Md., the GE subsidiary that owns the General Electric Network for Information Exchange (GEnie). The service's big competitors, including America Online, CompuServe, Prodigy and The Microsoft Network (MSN), have made similar Web pledges.

On-line services

GEnie once was a leader in the on-line services industry. Founded in 1985, it vied with CompuServe in popularity. But GEnie was beset by lousy marketing, little to no advertising and a failure to come out with a reliable front end for Windows.

In the future, GEnie will focus on trying to win recreational consumer users, using the existing, loyal customer base as a core. In the short term, the service hopes to win back users who left during its decline. At its peak in 1994, it had an estimated 400,000 users; now, it has just 55,000, said Fred Sugarman, a spokesman for Yovelle. By comparison, CompuServe has an estimated 4 million users, and the MSN has accumulated an estimated 600,000 users since it started in August.

Other than that, Sugarman was reticent about future plans. He wouldn't comment on who the new owners are or their previous business record or financing.

GEnie staff expressed hope that Yovelle could return GEnie to its glory days. "I am relieved that the waiting is over, and I am anxious to see what these people want to do," said Nic Grabien, a contractor who runs one of the largest services on GEnie, the Science Fiction RoundTable.

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   21. Dir./Mgr. MIS Services, Information Center
   22. Dir./Mgr.: Network Sys., Data/Tele. Comm., LAN Mgr. /PC Mgr., Tech Planning, Admin Svs.
   23. Dir./Mgr. Sys. Development, Sys. Architecture
   31. Programming Management, Software Developers
   41. Engineering, Scientific, R&D, Tech. Mgt.
   60. Sys. Integrators/VARs/Consulting Mgt.

   CORPORATE MANAGEMENT
   11. President, Owner/Partner, General Mgr.
   12. Vice President, Asst. VP
   13. Treasurer, Controller, Financial Officer

   DEPARTMENTAL MANAGEMENT
   51. Sales & Mktg. Management
   70. Medical, Legal, Accounting Mgt.

   OTHER PROFESSIONAL MANAGEMENT
   80. Information Centers/Libraries, Educators, Journalists, Students
   90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

   Operating Systems

(a) Solaris	(e) Mac OS
(b) Netware	(f) Windows NT
(c) OS/2	(g) Windows
(d) Unix	(h) NeXTstep

   App. Development Products ❑ Yes ❑ No
   Networking Products ❑ Yes ❑ No

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   30. Medical/Law/Education
   40. Wholesale/Retail/Trade
   50. Business Service (except DP)
   60. Government - State/Federal/Local
   65. Communications Systems/Public Utilities/ Transportation
   70. Mining/Construction/Petroleum/Refining/Agric.
   80. Manufacturer of Computers, Computer-Related Systems or Peripherals
   85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
   90. Computer/Peripheral Dealer/Dist./ Retailer
   95. Other_____ (Please Specify)

2. **TITLE/FUNCTION** (Circle one)
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   23. Dir./Mgr. Sys. Development, Sys. Architecture
   31. Programming Management, Software Developers
   41. Engineering, Scientific, R&D, Tech. Mgt.
   60. Sys. Integrators/VARs/Consulting Mgt.

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   DEPARTMENTAL MANAGEMENT
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   70. Medical, Legal, Accounting Mgt.

   OTHER PROFESSIONAL MANAGEMENT
   80. Information Centers/Libraries, Educators, Journalists, Students
   90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

   Operating Systems

(a) Solaris	(e) Mac OS
(b) Netware	(f) Windows NT
(c) OS/2	(g) Windows
(d) Unix	(h) NeXTstep

   App. Development Products ❑ Yes ❑ No
   Networking Products ❑ Yes ❑ No

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Editorial

Apple needs Sun

In journalism, there's a thing called an "evergreen" headline. It's a headline you write and then file away, knowing you'll very likely use it again someday.

Nine years ago, we wrote just such a headline. It read, "Apple to lure MIS, tie Macs to CPUs." For all I know, that wasn't the first time we wrote that headline. I am certain it wasn't the last.

The innovative marvel that was Apple spent much of the past decade trying to break out of the corner into which it had painted itself. That corner was populated by home users, schools and maniacal Macintosh devotees. I was a Macintosh user (desktop and laptop) for several years — several very satisfactory years.

Eventually my company adopted a Wintel strategy that confined Macintosh use to the design/graphics department. Those users would quit if we tried to separate them from their Macintoshes.

By the time you read this, Apple may have agreed to be bought by Sun; at least that was the conventional wisdom at press time. If it is true, we may finally be able to write that "evergreen" headline about Macintoshes becoming bona fide corporate citizens for the last time.

Forget about why Apple's management failed. Yes, if John Sculley or Steve Jobs had licensed their elegant Macintosh technology 10 years ago, the world would be different today. But people do what they do when they do it with the information they have, period. Failing to license the Macintosh stifled innovations that a bigger legion of third-party developers would have brought to the Macintosh world.

Sun is a corporate citizen, and a good one. It is sitting on a keg of dynamite called Java, its white-hot Internet programming language that promises to enable applications written once to run on any machine. Like a Wintel box. Or a Unix box. Or . . . a Macintosh.

With 15 million or so Macintosh maniacs out there, what better way to get Java off to a flying start than to have your own instant installed base to work with? And what better way to egg on the always-reticent third-party developers than to present them with such an installed base for Java-enabled applications?

When you consider the alternatives, a Sun buyout is the best thing both for Apple and for Macintosh users. Such a move also would turn up the heat on Microsoft. The customer is the inevitable beneficiary of the innovation born of competition.

Bill Laberis

Bill Laberis, *Editor*
Internet: *bill_laberis@cw.com*

Letters to the editor

Hail the help desk

Jeremy Schlosberg's article ["Not much help," CW, Dec. 18] does an excellent job portraying how low the help desk falls on the corporate totem pole. However, this does little to diminish its importance to the infrastructure of any information systems organization.

For example, a Gartner Group, Inc. study found that over the lifetime of a PC, the initial purchase is only 15% of the actual cost of ownership. The other 85% is spent on support and administration. Whether this 85% lifetime cost is spent effectively depends largely on how well the help desk integrates into the IS structure.

Effective help desks spot end users who need training and mission-critical equipment that is unreliable. They also provide a central point of contact for the IS community.

With corporations relying more and more on IS technologies, the help desk will surely become an indispensable tool in protecting the investment that corporations make in those same IS technologies. The help desk is a corporate entity whose time has come.

David Hwang
Greensboro, N.C.
consign@infi.net

Making money

Maybe I missed the point regarding the expense, bandwidth and such of marketing on the Internet ["The 'net cheap? Think again ... " CW, Dec. 18]. It seems to me that the big shops with deep pockets are spending far more than they should. My first year's expense will be under $2,000 including [payments to the] access provider, home page development and directory fees. I recovered that much in less than four months.

Most buyers that use the World Wide Web are small companies or individuals [that have] low-speed connections. They aren't impressed with the delay in receiving huge graphical images and go elsewhere. They want steak, not sizzle.

Graphics are wonderful for the product that has to be seen to be sold. They are even better for the consultant that you pay to create them, the marketing department with an ego [that needs] to outdo the competition and people who think the marketplace really cares what your headquarters looks like.

Too many home pages are based on what some consultant said to do to be successful. Let common sense prevail, and your market will tell you if you are doing it right.

Rich Madzel
Columbia, Md.
rich@telemarketing.com

Different paradigms

Craig Dudley's letter stating that "SNA, and all proprietary protocols, will always outperform public-domain protocols" ["SNA performance always better," CW, Dec. 18] says more about mistrust of open systems than network performance.

The difference between a proprietary protocol and what Dudley inaccurately labels a "public-domain" protocol is slight; one is controlled by a vendor, the other isn't. My experience with TCP/IP (a nonproprietary protocol) and IPX/SPX (a proprietary protocol) has shown that TCP/IP is far more scalable, efficient and reliable for LAN and WAN communications.

Dudley says that SNA over TCP/IP will always be worse than straight SNA because of the longer header on IP packets. But experience has shown that once the line speed gets much above 64K bit/sec., increasing packet header size has negligible effect on throughput.

Dudley is right that SNA over IP doesn't work as well as raw SNA, but the two were designed around completely different networking paradigms. Both were designed for the "speed and fast response times" that Dudley attributes to SNA. I'll bet TCP/IP over SNA doesn't work very well either!

Mathew Lodge
Houston
lodge@houston.omnes.net

Did Gates say that?

In "Capitulation" [CW, Dec. 11], did you misquote Bill Gates in saying, "'Today, Cobol, Visual Basic and C are 90% of what goes on'" in platform-independent languages? Which non-MS-DOS platform does Visual Basic run on? *Joseph Cox*
U.S. Air Force in Germany
jcox@usaferam.af.mil

Editor's note: Yes, that quote is correct.

■ Computerworld welcomes comments from its readers. Letters should not exceed 200 words and should be addressed to Bill Laberis, Editor, Computerworld, P.O. Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Michael Fitzgerald

Like you, Howard Stern can't get ISDN

The FCC is bogged down, and Nynex has no incentive to bring ISDN to Long Island.

You have something in common with radio personality Howard Stern.

"What's that?" you ask. "I'm not a male adolescent disguised as a forty-something transvestite."

Too true, and we all thank you for that. But nonetheless, Stern wants Integrated Services Digital Network (ISDN) and can't get it. In all likelihood, so do you.

The king of risque radio complained on his show that because he can't get ISDN, he can't work (naked) from home, he can't get fast access to (triple X) on-line services, and his (lurid) E-mail connections are too slow.

Those are, roughly speaking, the same reasons most businesses want ISDN.

Granted, Stern confessed that it was good for his marriage that he couldn't get ISDN. He really wants it so he can download prurient pictures of postpubescent preeners. But Long Island is the 11th-largest commercial market in the country, so why can't he get ISDN?

You folks in IS know what he means. Too many of you have called telephone company representatives who still can't spell ISDN, much less sell it to you. Even if you do have ISDN, getting it probably drove you to wish it were still politically correct to drink heavily.

You're not even famous. But Stern is, and he's probably rich, too. So why is it that in the 11th-largest market in the country, the escape hatch from New York, even Howard Stern can't get ISDN?

Howard Stern, meet Maribel Lopez Howard. Lopez Howard casts a stern eye on the ISDN market as an analyst at International Data Corp. She pointed out that because Long Island is largely a residential place, Nynex has little reason to let Howard Stern, or anyone else on the island, have ISDN.

GERARDO SOMOZA/OUTLINE

Radio personality Howard Stern (left) and FCC Chairman Reed Hundt usually have little in common. But they both want ISDN in a big way.

To bring ISDN to the island, "Nynex has to update its entire set of switches, which cost hundreds of thousands of dollars each," Lopez Howard said. "They're going to do this so a few folks can run up a few pennies more in charges? There's no way it's worth it to them until demand is significantly higher."

There you have it. This despite last year's effort by the Federal Communications Commission to boost ISDN. The FCC in May put out a proposal to rationalize ISDN pricing nationwide. It wanted to move quickly. But it's still mired in meetings on the topic, in part because of the government shutdown. Now, in fact, Pacific Bell, arguably the most successful of the phone companies at pushing ISDN, and US West want to charge more for the service.

The FCC's move to revise its ISDN regulations so far hasn't caused the regional Bell telephone companies to accelerate the pace of their ISDN installations, either. Market-lagging Nynex seems to be saying, "Not in this lifetime, bub, no matter how good your hair is."

But I have a thought that just might help.

I propose that FCC Chairman Reed Hundt name Howard Stern the ISDN poster boy for 1996 in exchange for dropping, say, a couple million bucks in fines against him.

Maybe the phone companies will be embarrassed into action by a man with a vocabulary in the sewer and the legs of a third-string water boy. Maybe then there will be ISDN for all.

Whaddaya say, Reed?

Fitzgerald is assistant sections editor at *Computerworld*. His Internet address is mfitzgerald@cw.com.

John Gantz

Is your Web site worth the effort?

The cost of a high-end Web site has crashed through the $1 million barrier.

Remember when we used to worry about the uncontrolled influx of PCs into our organizations? Who was buying them? Could they be networked? Would there be a business return on investment?

Hey, that was nothing. At least then we knew what PCs were good for — displacing more expensive word processing systems or more troublesome manual spreadsheets. What about Web sites?

Figure out how your Web site will stand out in the crowd.

Do corporate IS managers and chief information officers have any idea how much Web site development is going on across their companies? Does anyone know whether it will pay off? Do we even know how much we're spending on Web sites now or will spend in the future?

At the moment, the pressure to develop a corporate presence on the Web is intense. Web mania means the sale of oodles of new software and hardware on which to run it. It means career enrichment for marketing professionals and burned-out programmers. But, in the end, is it all going to be worth it?

The answer for the moment is "yes" because of the incredible jump in the number of Web users worldwide. I'm one of those analysts who is bullish about Web-based commerce. But Web-based commerce is no picnic. Costs are high, the Web is getting crowded, and measuring the return on investment of a Web presence will be a very squishy thing.

The costs of developing high-end Web sites crashed through the $1 million barrier long ago. Early feedback from International Data Corp. (IDC) surveys indicates that at Web sites designed to support high-transaction loads, development costs tend to run four times higher than expected.

Meanwhile, with everybody and his brother (or sister) developing a Web site, the number of Web pages will skyrocket. According to our Internet Commerce Market Model, there are already three Web pages (as measured by uniform resource locators) for every Web user.

At the current rate of development, the overpopulation of Web sites will become apparent about the end of the year. Your Web site, like Waldo in a wall-size "Where's Waldo?" poster, may have trouble standing out in the crowd.

To illustrate, we've developed the IDC Web Index. This is an equation that takes the number of hours users surf the Web in a month (shoppers), divided by the number of Web pages (stuff to buy), and multiplies it by transaction levels (what they spend). The index stood at over 700 at the beginning of this year, up from 100 a year ago. It's expected to hit almost 900 at midyear but then drop 300 points by year's end as the glut of Web pages catches up to the growth in users.

Frankly, there will be Web sites and then there will be successful Web sites. Only a small fraction of sites will generate the majority of real Web commerce. We predict that of the 170 Fortune 500 home pages identified last December, fully 20% will be retired — support will be pulled and development stopped — by the end of the year.

My advice: If your organization is rushing pell-mell into establishing a Web presence, it had better start thinking about how to make that site stand out, how to generate productive traffic and how to measure success. Furthermore, if the site is to pay its way, the organization had better plan to spend a lot more on support infrastructure, development tools and design consultation.

Meanwhile, user departments are developing their own Web presences willy-nilly. Their Web sites don't comply with a corporate design standard, and they generally offer idiosyncratic windows into corporate information. Sooner or later, they will have to be roped into a common corporate Web strategy, infrastructure and identity.

By then, those individual Web sites will have become unwieldy legacy systems. Guess who'll have to straighten out the mess?

Gantz is senior vice president at International Data Corp. in Framingham, Mass.

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IBM teaches VM, VSE new mainframe tricks

By Craig Stedman

IBM's attempt to make mainframes less stodgy is directed mostly at the MVS-based systems that dominate big corporate data centers.

But it doesn't stop there.

The computer giant also is trying to add a little zest to the smaller slabs of big iron that run its more obscure VM and VSE operating systems. Those products are getting a dose of modern medicine that users hope will perk up their System/390s.

While MVS brings in most of the System/390 revenue, VM and VSE still account for 63% of the 13,784 U.S. mainframe operating system licenses counted by Computer Intelligence InfoCorp in La Jolla, Calif. The two are often used together, with VM hosting one or more VSE application environments.

A long-promised new version of VM is finally becoming available, in stages. Base compliance with the Posix open systems standard came out late last year, and IBM is now field-testing code that supports graphical user interfaces (GUI) and the Open Software Foundation's Distributed Computing Environment (DCE).

The capabilities for developing GUIs and acting as a client in DCE networks are scheduled to ship in late March, completing the first round of development on VM Version 2. More robust GUI features, including icons and drag-and-drop support, will be added at an unspecified date, IBM said.

A VSE update, also called Version 2, was finished in the second half of last year with support for multiprocessing and other additions.

VM's newfound GUI should jazz up applications and let some processing tasks be off-loaded to PCs, said Arthur Ecock, manager of VM enterprise systems at City University of New York. The school, which is beta-testing Version 2, uses VM for electronic mail, application development, LAN backup and student computing.

"It's time for something a little more flashy" than typical 3270 terminal screens, Ecock said. However, longtime VM users may have to "crack open our textbooks again" and learn new programming languages such as C++ to fully exploit the GUI capabilities, he added.

"There's a lot of work still to be done. It won't be like Windows yet."
— Arthur Ecock, manager of VM enterprise systems, City University of New York

IBM also had to shift gears after its first GUI prototype was too slow, Ecock said. As a result, the March release will be able to build only rudimentary GUIs without drag-and-drop options. "There's a lot of work still to be done," he said. "It won't be like Windows yet."

Another issue to contend with is whether third-party software vendors will invest time and money to overhaul their VM applications with GUIs.

"When you're dealing with third-party vendors, we're kind of the poor shirttail relations to MVS shops," said Stan Johnson, director of management information systems at Worldport LA, the port authority for Los Angeles.

Still, Johnson said he is intrigued by the promise of a more user-friendly VM. Worldport LA has moved its construction management to Unix-based systems, but financials, billing and pieces of application development still run under VM and VSE.

Three amigos

An explainer of the differences between IBM's trio of mainframe operating systems

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VM – GEARED TOWARD INTERACTIVE USES SUCH AS E-MAIL, CALENDARING AND APPLICATION DEVELOPMENT. VM ALSO CAN HOST VSE SYSTEMS TO GIVE THEM ACCESS TO A SECOND CPU.

Fujitsu tablet fills Searle prescription

Sales force automation project needed pen applications, connection to office

By Mindy Blodgett

When Chuck Quinones went looking for an appropriate device for a new sales force project at Searle Pharmaceuticals, he found the pickings slim.

"There just isn't a lot out there," said Quinones, associate field director of sales force automation at Searle. "We needed a pen-based system that would also help us maintain inventory, do bar-coding and connect back to the office. That was a tall order."

Mobile computing

For years, sales representatives at Searle, a Chicago-based subsidiary of Monsanto Co., used handheld, pen-based devices from Grid Systems Corp. — makers of the early pen-based computers. But when Grid went out of business, Searle turned to the Fujitsu Stylistic 500, a tablet computer that costs $2,175.

"We're doing a pretty substantial upgrade of our sales force automation project, and the Fujitsus filled the bill," Quinones said.

The Stylistic 500, made by Fujitsu Personal Systems, Inc. in Santa Clara, Calif., has an Intel Corp. I486DX2 processor with three expansion slots. These include space for a Type III PC hard disk or a Type II solid-state flash card, plus two slots for either two Type I/II PC cards or one Type III PC card.

Features of the Fujitsu Stylistic 500 handheld device:

Weight: 2.6 pounds

Dimensions: 7.2 in. by 10.7 in. by 1.5 in.

Processor: Intel I486DX2-50 chip

PC cards: Two Type I/II

Meets their needs

Tim Schmidt, an analyst at Encore Consulting Group, Inc. in Longwood, Fla., said the Stylistic 500 makes sense for pharmaceutical companies because they need a lightweight device that will run pen applications.

The device is good for executive users because it also comes with a keyboard.

He said the instability of vendors in the pen market has made it difficult for users to settle on a specific device.

"I've known of some pharmaceutical companies that started sales force automation projects, and by the end of the pilot, the device has been yanked from the market," Schmidt said. "That has happened many, many times."

Schmidt said that, by contrast, the Fujitsu machine has good technical features and comes from a stable vendor.

In contrast to Fujitsu, other companies, such as Telxon Corp. and Norand Corp., make handheld, pen-based devices with more ruggedized features.

"Those devices are more for field service technicians," Schmidt said.

Because of the dearth of options, some companies are turning to personal digital assistants such as the OmniGo 100 from Hewlett-Packard Co., he said.

Because of federal regulations requiring more accountability from pharmaceutical companies in tracking drug sales, the handwriting-recognition feature of the Fujitsu device is important for signature-capturing and record-keeping, Quinones said.

Quinones said the first phase of the sales force automation rollout, which will involve about 1,200 employees, will focus on the hardware change to the Stylistic 500s. For now, the old applications will run on the new system while the new software is being devised.

Sales representatives will have the full suite of Fujitsu offerings, including a keyboard that can be plugged in to allow users to receive and send electronic mail back to the office.

Users happy

Quinones said users are pleased with the lightweight devices and are excited to have access back to the office via E-mail.

The company is also switching from a DOS-based system to Windows, which has been, Quinones said, "culture shock, but a nice culture shock. People are really happy with the ease of Windows."

Sales is sold

According to an International Data Corp. report, salespeople are among the primary users of notebooks. The report said that at the end of 1993, 23% of notebooks sold to 402 medium-size companies were for sales users. The report also said notebook computer sales grew by 31% from 1993 to 1994.

New Products

Inpro International, Inc. has introduced Spool Archive Now/400 for IBM's AS/400.

According to the Colleyville, Texas, company, the product lets AS/400 users compress and archive to tape or delete spool files by out-queue. The spool files are rolled off the system for later retrieval and respooling of the original spool file.

The product provides a menu interface and loads all current out-queues for management without user input, thereby eliminating start-up time. It supports retrieval search criteria and information on which tape to mount.

Pricing for Spool Archive Now/400 starts at $1,495.

▶ *Inpro International*
(817) 366-4615

Panasonic Communications & Systems Co. has introduced a five-disk, quad-speed autochanger, SQ-TC500N.

According to the Secaucus, N.J., company, SQ-TC500N is a networkable autochanger designed for multimedia users who regularly access multiple CD-ROMs. It lets users load and access up to five disks and includes software that lets users switch CD-ROMs by pointing and clicking on-screen. The drive weighs 2.9 pounds, has a 600K byte/sec. transfer rate and installs in a 5 ¼-in., half-height drive bay.

SQ-TC500N costs $399.

▶ *Panasonic Communications*
(201) 348-7000

Texas Microsystems, Inc. has introduced Hardbody, a handheld PC.

According to the Houston company, Hardbody is a pen-based, handheld PC that features a 75-MHz Intel Corp. I486 processor, 8M to 32M bytes of RAM, a 260M-byte hard disk drive and a Type II and Type III PCMCIA slot.

Pricing for Hardbody starts at $3,975.

▶ *Texas Microsystems*
(713) 541-8200

CalComp, Inc. has unveiled TechJet Color GT, a family of wide-format color ink-jet plotters designed for use in graphic arts and computer-aided design and architectural applications.

The Anaheim, Calif., firm said the plotters have high-capacity ink cartridges, plot on many types of media, include a variable-width rollout media adapter, feature plot nesting and provide fast throughput.

Pricing for the TechJet Color GT models starts at $5,295.

▶ *CalComp*
(714) 821-2000

InterNex Technologies, Inc. has introduced NexPhone, a PC sound card.

The Santa Clara, Calif., firm said NexPhone is an external sound card that attaches to the parallel port of a laptop or desktop PC. It gives users sound over a dynamic range of 72 decibels and uses 480K bytes of disk space for a 60-second recording.

NexPhone is an integrated package without outside wires. It has stereo capabilities through two integrated speakers and an internal microphone for recording. It is Windows 95- and Sound Blaster-compatible and weighs less than 12 ounces.

Pricing for NexPhone starts at $229.

▶ *InterNex Technologies*
(408) 727-6584

Product short

WinGate Technologies, a division of MITech, Inc., has introduced WordMerge Plus, a product for merging DOS accounting data with Windows documents. It was designed to merge on-screen data with more than 30 Windows documents and label templates in Microsoft Corp.'s Word, Novell, Inc.'s WordPerfect or Lotus Development Corp.'s WordPro. Cost: $295 per user. WinGate Technologies, Morristown, N.J., (201) 539-2727.

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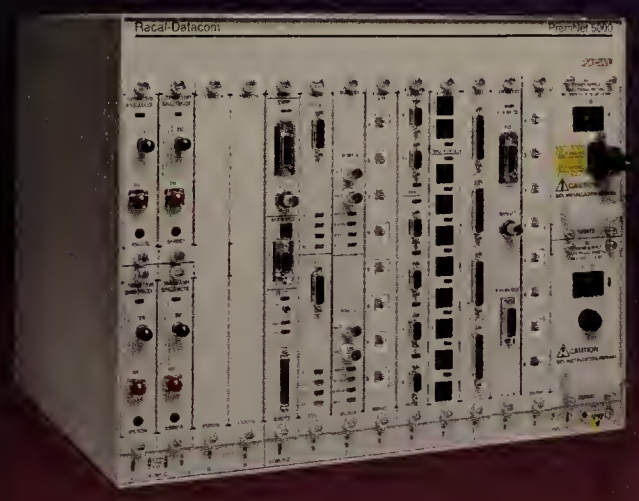

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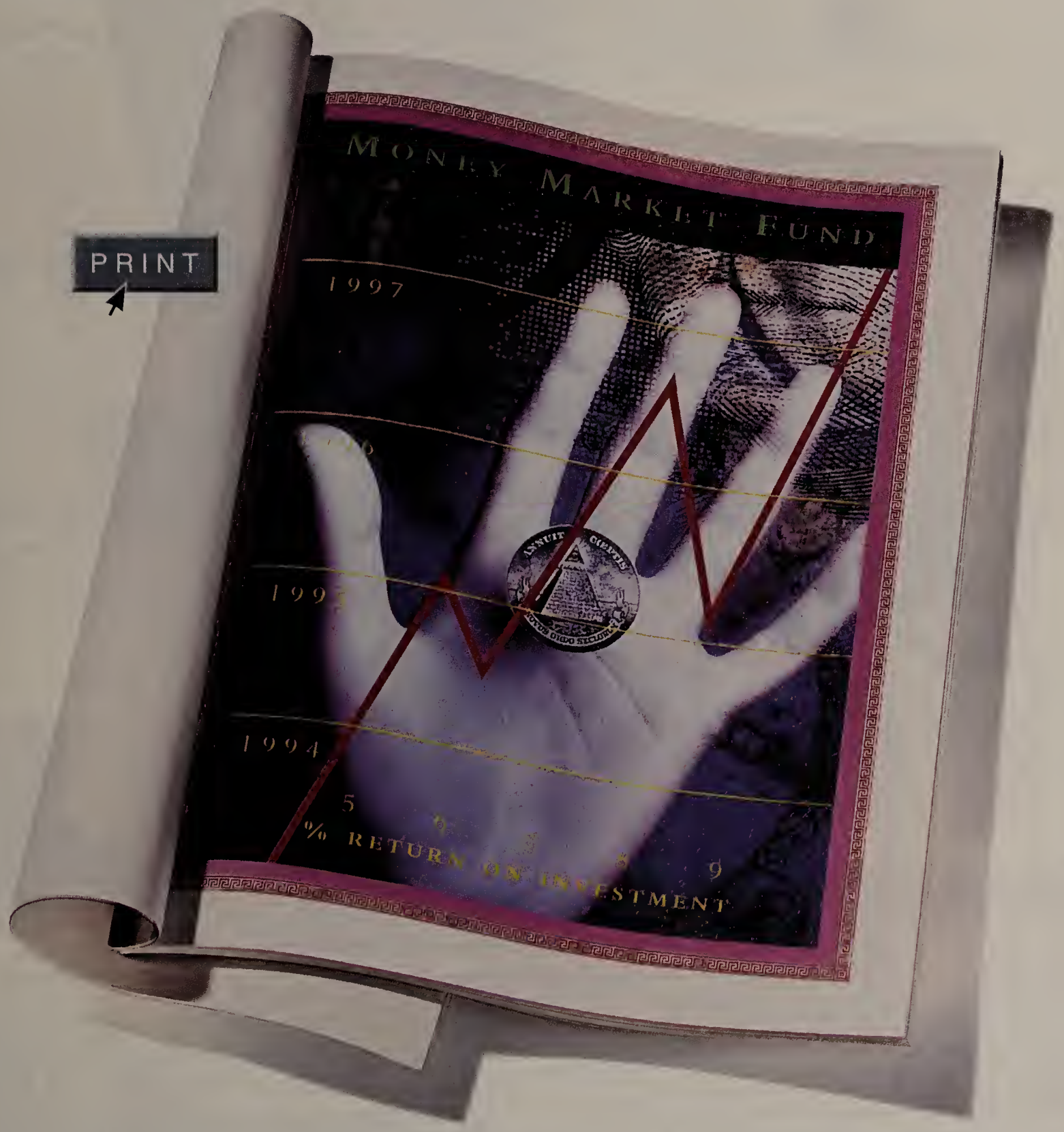

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German travel service picks Tandem

By Michael Goldberg

IBM mainframe? They'd been there. Unix enterprise server? They looked at it. But when it came time to pick a scalable computer system for their on-line reservations system, managers at the German travel service Deutches Reisburo GmbH picked a proprietary server from Tandem Computers, Inc.

A longtime IBM mainframe shop, Deutches Reisburo (DER) in Frankfurt chose a four-processor massively parallel Himalaya server, in part because its new reservations application was designed for Tandem's NonStop Kernel operating system. Three hundred users on Windows PC clients access the system, called Phoenix, which DER developed with Fourth Dimension Software, Inc. in Redwood City, Calif.

Tandem's offering of a stable, reliable platform that can scale with the firm's processing requirements was as important as the application, said Gudrun Schoen, an information systems manager at DER.

Users at the German firm Deutches Reisburo access the new Phoenix travel system via Windows-based PCs. Other aspects of the travel information system include:

- **SERVER:** 4-processor Tandem Himalaya server
- **DATABASE:** Tandem NonStop SQL, with Fourth Dimension software
- **NUMBER OF IN-HOUSE USERS:** 300
- **AGENCIES ACCESSING SYSTEM REMOTELY:** 6,000 in Germany
- **INVESTMENT:** Approximately $17 million*

*Includes hardware, software, service and staff training over life of project.

Big operation

Schoen said hardware fault tolerance is a requirement for the German travel service, which processes 1.4 million reservations per year. The agency connects to systems at 6,000 travel offices in Germany and airlines, hotels, car-rental agencies and other travel providers (see chart).

"We thought Tandem could be a very good choice. It looked more secure than a Unix system," Schoen said. And DER expects the Tandem system will cost less to maintain than its mainframe did, Schoen added.

DER rolled out the first production phase of the Phoenix system on the Himalaya server in December after more than a year of development and testing. The firm's migration off its IBM MVS system should conclude by the middle of this year, said Yuri Vizitei, a consultant on the project from Columbia, Mo.

Future plans call for offering travel information to consumers on German on-line Internet services and establishing wide-area network connections to DER affiliates in Europe, Japan and the U.S., Schoen said.

Vizitei said Germans make more than half their travel plans via computer transactions; in the U.S., most travel plans are still made by telephone. Because of this, DER's business depends on fault tolerance, he said.

Analysts said DER's choice of Himalaya bucks the computer industry trend of buying Unix enterprise systems and underscores the value of proprietary systems for solving certain problems.

"It's significant when a company like that chooses a less conventional option," said systems consultant Richard Winter, president of Winter Corp. in Cambridge, Mass. He said it shows that "Unix is increasing in robustness and manageability all the time, but it doesn't have the maturity of an environment like the one Tandem delivers."

Pentium Pro PCs are here

By Bob Francis

Brace yourself. A torrent of Pentium Pro systems designed for power users in networked and non-networked Windows NT environments is hitting the market.

The Pentium Pro is Intel Corp.'s first high-end processor specifically designed for 32-bit applications. According to Martin Reynolds, an analyst at Dataquest, Inc., a research firm in San Jose, Calif., the high-end corporate environment that runs under Windows NT is "really the only spot that makes sense for these systems until Pentium Pro server chip sets are ready."

Those chip sets are expected to be ready sometime in the second quarter. Servers should follow soon after.

While they wait for Intel's server implementation of the chip, PC vendors are flooding the market with high-end desktops (see chart). Dell Computer Corp., Hewlett-Packard Co. and AST Research, Inc. recently announced new Pentium Pro desktop systems.

Dell gets the jump

Quickest out of the chute with its Pentium Pro system was Dell in Austin, Texas. The company is shipping Dimension XPS Pro150, a 150-MHz Pentium Pro-based minitower PC. A 200-MHz Pentium Pro version of the system will begin shipping by the end of February.

Dell's Dimension XPS line of Pentium Pro systems uses RamRight, a memory error correction technology designed to detect and correct single-bit memory errors. Error correction has been used in servers for some time but has become more important on desktops as companies begin to deploy them in mission-critical applications, said Mick O'Rourke, vice president of marketing at TechWorks, Inc., a memory supply company also in Austin.

Palo Alto, Calif.-based HP is adding three Pentium Pro-based Vectra PCs to its line. The PCs, like Dell's, were designed for use in 32-bit operating system environments. They will ship in late February.

The HP Vectra VT 6/200, which uses the 200-MHz Pentium Pro, is a uniprocessor system designed for non-networked environments and doesn't include error checking and correcting (ECC) memory.

The two Vectra XU models — the 6/180 with a 180-MHz Pentium Pro processor and the 6/200 with a 200-MHz version of the processor — use 64-bit dual in-line memory modules and include ECC memory. They also support dual processing on the motherboard and include a Peripheral Component Interconnect-based 10Base-T/100VG AnyLAN network card.

AST Research in Irvine, Calif., this week is expected to add the Pentium Pro processor to its Bravo desktop line. The Bravo MS-T 6150 carries an aggressive street price of $4,560 for a system with a 150-MHz processor and 16M bytes of RAM.

Coming down the pike

Recently announced high-end Pentium desktops

VENDOR/PRODUCT	PROCESSOR	HARD DRIVE	RAM	PRICE
Compaq Presario 9200/9600	120-MHz Pentium	1G byte	8M bytes	$1,799
Hewlett-Packard HP Vectra XU 6/200	200-MHz Pentium Pro	1G byte	32M bytes	$6,211
Dell Dimension XPS Pro200	200-MHz Pentium Pro	2G bytes	32M bytes	$5,599
AST Research Bravo MS-T 6150	150-MHz Pentium Pro	1G byte	16M bytes	$4,560

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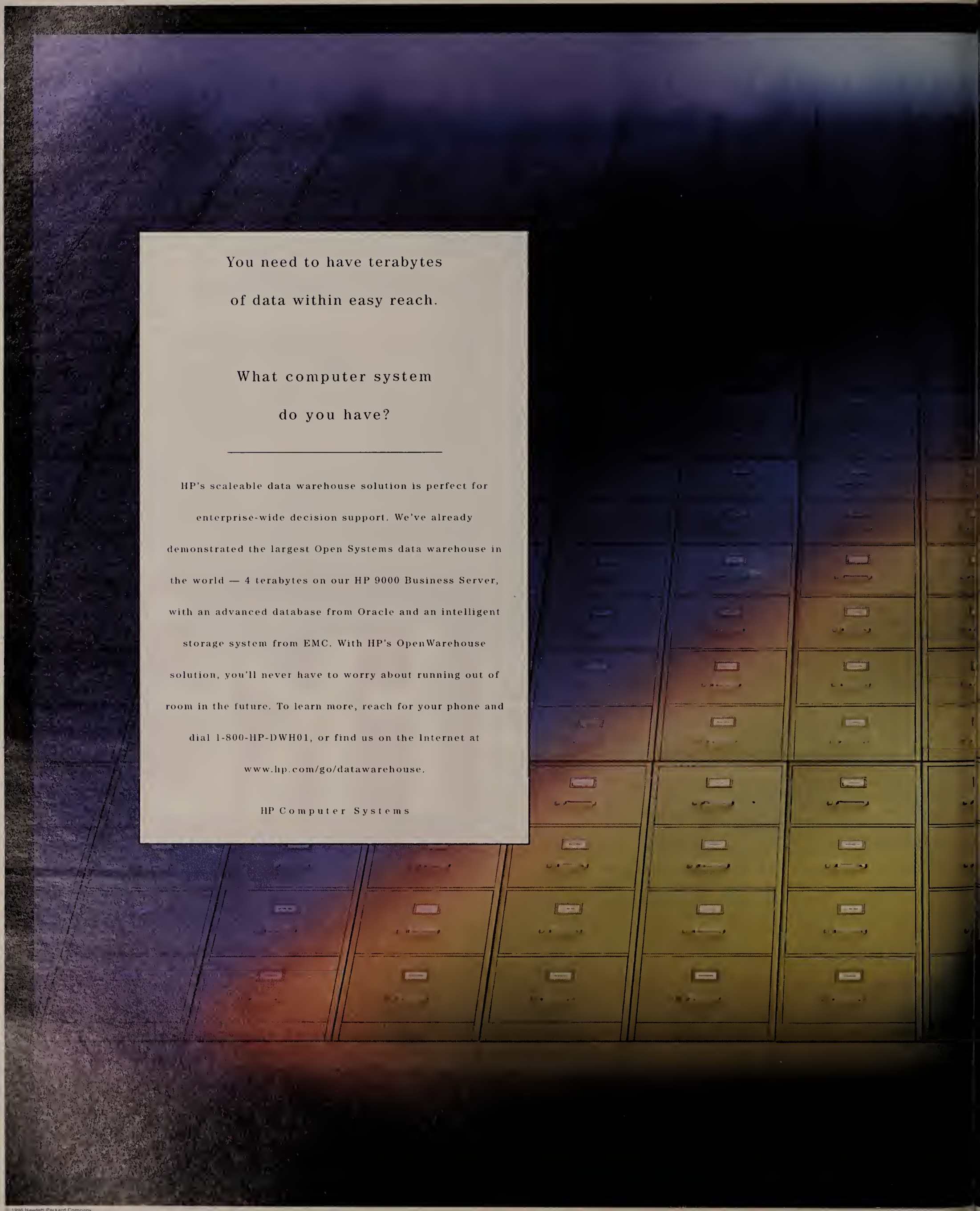

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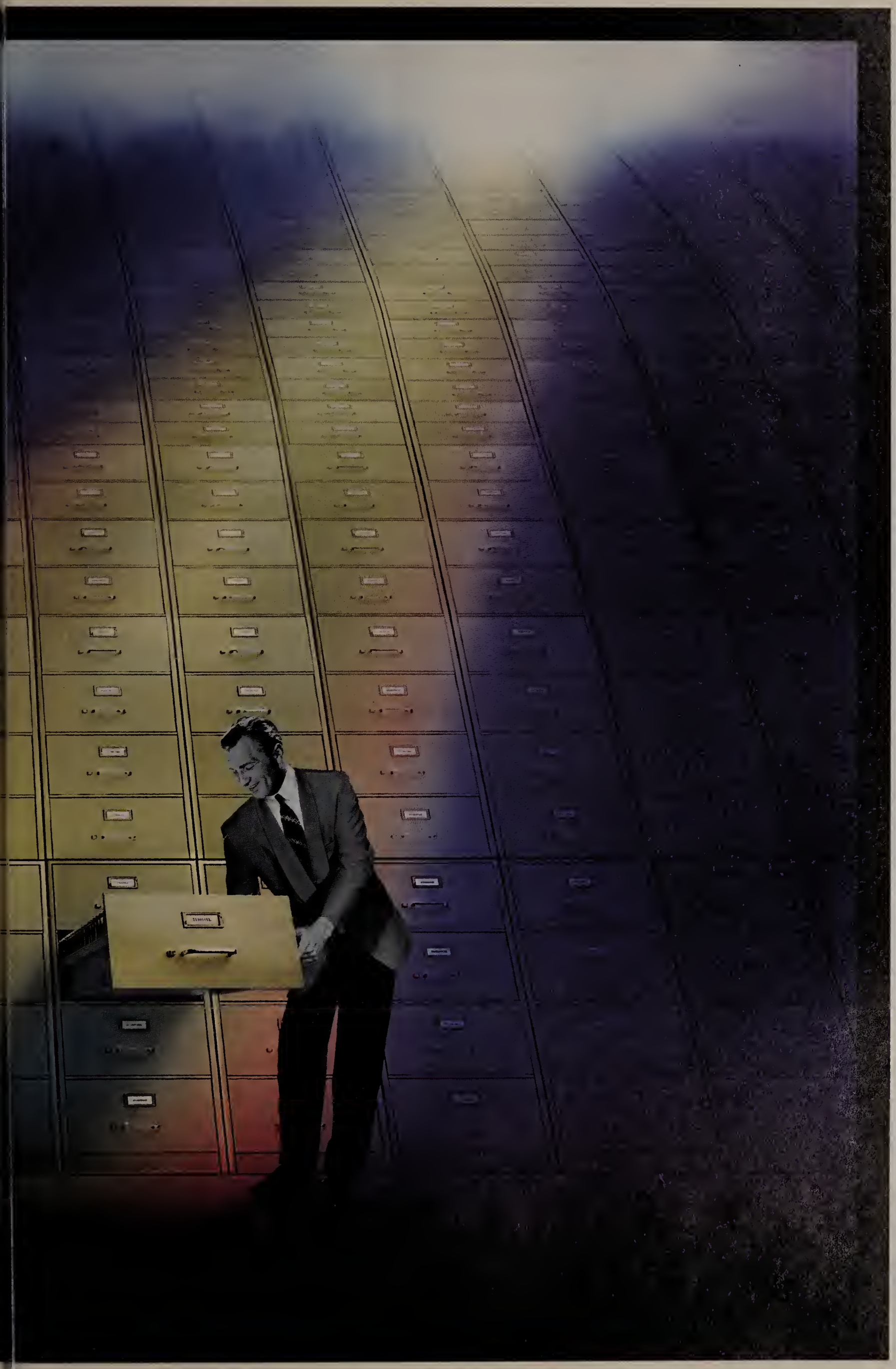

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Data mining chisels its niche

By Dan Richman

If knowledge is power, then software designed for so-called data mining may be the most powerful in the family of data query tools.

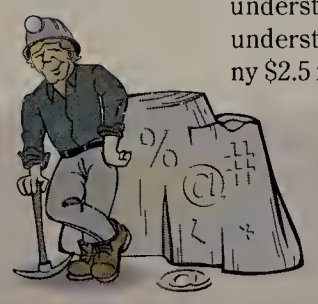
Data mining software is an offshoot of university-based artificial intelligence research and the most complex and technologically sophisticated of data query tools. Those include ad hoc query and reporting software and multidimensional analysis products.

The most popular data mining tools use an underlying technology called a neural network. The network uses rules that it infers from patterns in data. Other popular technologies for data mining include decision trees, rule induction, data visualization and nearest-neighbor analysis. Many products use some combination of these, often with their own unique algorithms.

Independent search

Mining your data means letting the software answer vague questions and discover unknowns — for example, finding patterns or correlations that haven't been noticed before. It is the opposite of querying data, where questions and their answers are specific in query and targeted in subject.

For example, any simple querying tool could determine how many fewer batches of polyurethane components were produced annually by a chemical plant because key filters were clogging. But only a data mining tool could be programmed with every step in the manufacturing process.



It would then use that knowledge to draw its own conclusions about what was causing the clogs, said Kerry Kelly, a supervisor at Rubicon, Inc. in Geismar, La., a manufacturer of polyurethane components.

"We couldn't formulate a good theory about what the problem was because of its complexity. The neural network learned the process unencumbered by any theory, which helped us gain an understanding," Kelly said. That understanding saved the company $2.5 million.

Similarly, portfolio manager Concerto Capital Management, Inc. in Minneapolis uses a mix of homegrown and commercial data mining products to decide which of thousands of variables may have some value in predicting stock, bond and mutual fund markets.

"In the end, it always comes down to a human decision, but data mining is useful when there's a lot of data and you want to find which is meaningful to your problem," said Philip Hotchkiss, president of Concerto.

Nuggets of info

Data mining tools yield five types of information, said Herb Edelstein, president of Euclid Associates, a consultancy in Potomac, Md. These are associations, or detecting occurrences linked in a single event; sequences, or detecting events linked over time; classifications, or inferring conclusions about groups; clusters, or creating groups; and forecasts, or estimating future values based on data patterns.

Data mining tools traditionally have been used in scientific and engineering settings but are becoming more common in business environments.

"There was an increasing interest in these tools [last year], which I foresee continuing into [this year], with a possible explosion of buying in '97," said Alexis dePlanque, a research analyst at Meta Group, Inc. in Stamford, Conn.

Mining your own data

A sampling of data mining products

Vendor	Product	Area(s) of use	Price
Angoss Software International Toronto (416) 593-1122	KnowledgeSeeker	Finance	$1,000 per user
Cross/Z International Uniondale, N.Y. (516) 228-8500	Fractal Data Mining System, Fractal Multimodel*	Direct marketing	$250,000
Data Mind Redwood City, Calif. (415) 364-5580	Data Mind* (name may change)	Retail, telecommunications, finance	Not yet set
HNC Software San Diego (619) 546-8877	Database Mining Marksman, Database Mining Workstation	Direct marketing	$37,500 to $48,000
Information Discovery Hermosa Beach, Calif. (310) 937-3600	Information Discovery System, Corporate Vision	Retail, banking, finance, manufacturing	$690 to $25,000
Information Harvesting Mount Kisco, N.Y. (914) 244-8500	Information Harvester	Retail, banking, insurance	$15,000
Itanis International Pittsburgh (412) 344-4553	Hnet, C. Darwin II, Expert Rule Analyser	Finance	$195 to $6,995
NeuralWare Pittsburgh (412) 787-8222	NeuralWorks Professional II Plus, NeuralWorks Predict, NeuCop	Finance, manufacturing	$1,995 to $50,000
Neuristics Baltimore (410) 823-4600	No named products; offers customized models	Banking, finance	$75,000 to $1M

*By July 1

Paradox 7.0 calls on Experts

By Howard Millman

Concealed just below the deceptively simple veneer of Borland International, Inc.'s revamped Paradox is a competent, object-oriented database.

The product, which is in its 10th year and 12th iteration, combines technical merit and ease of use. This allows it to meet the needs of novices and experts.

Paradox 7.0's major enhancements include a 32-bit Borland Database Engine, full ANSI-standard SQL92 support and an animated, voice-annotated introduction in the CD-ROM version.

Despite its new engine, Paradox 7.0 maintains backward and forward compatibility with Paradox 5; it runs on Windows 95 and Windows NT.

Paradox 7.0 features Experts, which are interactive macros that simplify the most common database design tasks. Experts, which are equivalent to the wizard applications in Microsoft Corp.'s Access, level the playing field for novices and let them progressively learn the intricacies of database design.

Easy does it with Experts

Experts walk you through the process of creating forms and tables, running mail-merge applications, building charts or importing ASCII data. Real experts can elect to skip these proxy Experts.

We used the Startup and Database Experts to design a simple product inventory database in 15 minutes; we just had to answer the Expert's questions. We used the Database Expert to modify one of the eight sample databases that Borland ships on CD-ROM. We wish Borland would have included more varieties of the time-saving, pre-made databases.

Paradox 7.0's Launcher Expert wraps menus around forms, tables and queries and packages them into mini-applets that can be launched from Window 95's Start menu. The Report Expert offers several eye-catching display op-

Paradox 7.0, *page 52*

Windows NT support boosts newest B&B package

By Bob Francis

The latest release of Boole & Babbage, Inc.'s Ensign R3 client/server systems administration package adds support for a major component of many corporate client/server applications — Windows NT.

This support gives Ensign R3 access to nearly all the operating systems that are used in client/server applications today. It also brings Ensign R3 in line with Computer Associates International, Inc.'s CA-Unicenter, one of its competitors.

Besides the support for Microsoft Corp.'s enterprisewide operating system, Ensign R3 also includes the following:

- A distributed control console.
- Surveillance and automation modules.
- Interoperability with scheduling, software distribution and trouble-ticketing applications.

Client/server

The package supports Novell, Inc.'s NetWare and most major Unix platforms.

The customizable console integrates alert and systems administration functions and allows routine alerts to be distributed to junior administrators and help desk staffs, said Saverio Merlo, senior vice president of marketing at Boole & Babbage in San Jose, Calif.

Ensign R3 includes more than 50 predetermined filters and automation modules, so it can troubleshoot and begin automating systems fixes immediately after installation. The new version will come on CD-ROM, which should allow for an installation time of less than 10 minutes, Merlo said.

It will ship in the first quarter. Pricing for the package starts at $5,000.

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New Products

Data Code, Inc. has introduced Enterprise Series 6.0, a tool for implementing computing strategies companywide.

According to the Orlando, Fla., company, Enterprise Series 6.0 integrates different departments within an organization and provides a central relational database for sales and marketing information. It supports remote communications and database synchronization with geographically dispersed locations.

Enterprise Series 6.0 includes modules for opportunity management, business quotes and list management. It features integrated business graphics, quote systems and alarms.

Enterprise Series 6.0 was designed to let organizations tailor their environments to adopt different sales methodologies, restructure workflow, create new screens and reports and expand marketing databases.

Pricing for Enterprise Series 6.0 starts at $1,975.

▶ *Data Code*
(407) 351-3441

Avalan Technology, Inc. has introduced Remotely Possible/32, remote control software.

According to the Holliston, Mass., company, Remotely Possible/32 is 32-bit remote control software for Windows 95 that lets users control another Windows 95 PC. It has multitasking capabilities that let users run simultaneous sessions of remote control, file transfer and remote printing to one or several remote PCs.

Remotely Possible/32 was designed for help desks, training teams, sales demonstrations, telecommuting and administration support.

Pricing for Remotely Possible/32 starts at $169, which includes a license for two PCs.

▶ *Avalan Technology*
(508) 429-6482

IRS slow to file tax system modernization

By Gary H. Anthes
WASHINGTON

Federal tax systems modernization — one of the most complex, expensive and visible development efforts ever undertaken — remains in deep trouble after nearly a decade of effort.

The sixth and final report on the effort, released recently by the National Research Council (NRC) in Washington, says the Internal Revenue Service has failed on several fronts.

The IRS hasn't deployed application development basics, such as a systems architecture plan, performance metrics and plans for process improvement. The taxmen also have been slow to bring in the outside project management and technical expertise needed to get the $8 billion job done.

Electronic filing

"If the IRS does not address this issue soon, some very large investments may never yield significant results," the report stated.

Robert P. Clagett, chairman of the committee that wrote the report, said many of the system's problems stem from a culture that is hostile to outsiders. "It's a culture of 'promote from within,' " he said. "They've put people in technically responsible positions without technical backgrounds."

Clagett said technically astute people who were hired for the IRS' recently established Systems Architects Office were "frozen out" by insiders and weren't given the authority needed to get things done.

The fix is in

To fix the problem, the NRC report recommends the IRS do the following:

- Hire more top-notch technical managers.
- Develop systems performance metrics.
- Develop an architectural definition and design enforced by a strong set of interface specifications for key applications.
- Significantly increase attention to security issues.
- Implement a process improvement plan.
- Focus efforts on one key project in order to develop and prove methodologies for other systems.

IRS officials couldn't be reached for comment. But in an "update" to the report, the IRS said it has started to address each of the NRC's concerns and recommendations.

But Clagett said the IRS has responded the same way to previous reports. Similar reports issued over the years by the U.S. General Accounting Office also have received a cold shoulder from the IRS.

"None of the hierarchy understands project management or the technical issues," he said. "Some of the committee members have come to the conclusion they are not experienced enough to understand our issues."

Microsoft scoops up Vermeer

By Kim S. Nash

Until Jan. 16, Microsoft Corp. couldn't offer World Wide Web enthusiasts any substantial tools designed specifically for building internal or external Web applications. Now it has Vermeer Technologies, Inc. in its stable.

Observers said Microsoft's Internet Assistant is little more than a translation device, while its long-promised Blackbird development kit is not yet shipping (see chart).

But the buyout gives Microsoft a potentially valuable offering: Vermeer's FrontPage, a Windows-based application development kit designed to let users — not necessarily programmers — point and click their way to building Web sites.

Now dissolved into Microsoft's newly formed Web tools unit, Vermeer was founded 18 months ago on "the idea of having normal people out there creating Web [sites]," said Randy Forgaard, co-founder and chief technology officer at Vermeer in Cambridge, Mass.

Vermeer co-founders Randy Forgaard (left) and Charles Ferguson

Users cheer

"It's the most innovative product I've seen," said Brian Moura, an assistant city manager and webmaster for the city of San Carlos, Calif.

Moura, who has been evaluating FrontPage for several months, said he is impressed with the product's features for managing and tracking the various individual pages, text, graphics and hot links at a typical Web site. "You don't see that in many other products yet," he said. "I'm surprised no one bought the company sooner."

Published reports pegged the deal at $130 million. Officials at both companies refused to comment on financial terms other than to say the acquisition was in exchange for Microsoft stock.

The move puts Microsoft a half-step ahead of rival Netscape Communications Corp. in the Web tools arena. Mountain View, Calif.-based Netscape hasn't begun shipping its graphical Web builders — Live Wire and Live Wire Pro — but they are due out this quarter.

Some observers wonder whether Microsoft will make good on Vermeer's original promises to support a wide range of databases and platforms.

"Vermeer [engineers] never had a vested interest in supporting one language or database, but now they certainly do," said Anthony Wood, CEO of Iband, Inc., a San Francisco firm that competes with Vermeer in Web development tools.

Forgaard disagreed. "Microsoft folks have concluded that they need to support multiple vendors' solutions," he said.

Yet Microsoft plans to rewrite parts of FrontPage so that it works smoothly with the Microsoft Office suite, said Chris Peters, vice president of Microsoft's Web-authoring products unit.

But FrontPage and Office will remain separate, unbundled products, he said.

Similarly, adding support in FrontPage for Microsoft's SQL Server database "is an important priority," said Pete Higgins, group vice president of applications and content at Microsoft.

Meanwhile, "the great majority" of Vermeer's 40 employees will move cross-country to Microsoft's Redmond, Wash., locale, Forgaard said.

Front and center

Vermeer's FrontPage will fit in with Microsoft's other two Web tools

Product	Price	Purpose
Internet Assistant	Free	Translates Word files to the Web's HTML format
FrontPage	$695	Lets novices create simple Web sites for relatively few users or small departments
Internet Studio*	Not set	Lets professional programmers build complex, high-use Web applications

*Formerly known as Blackbird; due to ship this quarter

Briefs

Micro Focus ships suite

Micro Focus, Inc. has started shipping a 32-bit version of its Cobol Workbench development tool suite. Version 4.0 combines a mainframe Cobol compiler and the firm's object-oriented Cobol implementation with a source code control system, a work organizer and several other programming tools. The software costs $2,500 and supports OS/2 plus both 16- and 32-bit Windows. Over the next few weeks, Micro Focus will also begin shipping 32-bit versions of its CICS and client/server support, as well as IMS and mainframe assembler options, according to the Palo Alto, Calif.-based company.

Spyglass eyes Java

Spyglass, Inc., an Internet software maker in Naperville, Ill., has announced a new version of its World Wide Web server that supports **Sun Microsystems, Inc.**'s Java application development language.

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Electronic forms market begins to fill out

By Suruchi Mohan

Forms. They are the glory of the bureaucracy, the stuff with which filing cabinets are filled.

And even in the electronic world, they are proliferating. The electronic forms market is estimated to be worth $100 million and is expected to spawn a $250 million niche by 1998.

Necessary evil

It is easy to see why. Forms are an essential fact of life in insurance, health care and financial services organizations.

Users in these and other industries are especially keen on the notion of leveraging their networks to take advantage of electronic forms and eliminating some of that paper trail along the way.

"Automation of forms offers enormous re-engineering benefits," said Michael Hennessey, corporate vice president at PaineWebber, Inc. in New York. "Paper takes time, introduces errors, takes a lot of cycle time to execute and is expensive."

Jeff Weeks, a senior systems analyst at Safeco Corp., an insurance company in Seattle, agreed.

He said he doesn't use forms routing, but he uses Symantec Corp.'s Delrina FormFlow to write stock letters to customers.

Market change

"This process [ordinarily] would take three days," he said, explaining that without the software, a letter would have to be written from scratch every time it needed to be sent to a client.

Now, it takes a few minutes to merge the address with the text and proof it, he said.

"Additionally, its gives us consistency in dealing with customers," Weeks said.

What's in a name?

Any vendor can create a front end, said Steve Weissman, president of Kinetic Information. "Companies that define themselves as data movement/management businesses are more likely to survive than those [that] define themselves as electronic forms companies."

But the electronic forms market is on the cusp of a major change that will shift its emphasis from filing and tracking to data access, said Steve Weissman, president of Kinetic Information, Inc., a consultancy in Waltham, Mass.

Forms as mere front ends to databases will become commodity items, he explained.

As a result, forms companies will have to build differentiators in to their products, he said.

"In themselves, forms are not useful. The real use is in [their] integration with other applications," said David Furnish, president of Coastal Data Solutions, Inc. in Plantation, Fla., a systems integrator.

Symantec's Delrina FormFlow is one example of application integration.

Another comes from JetForm Corp., which adds value to its forms product by letting users manipulate data or convert numbers to bar codes on a form.

"You could do that with [Powersoft Corp.'s] PowerBuilder, but it would require a lot of programming," said Vas Rajan, a network administrator at Coopers & Lybrand in Parsippany, N.J.

On the other hand, the products that rely merely on the interface — such as Novell, Inc.'s InForms and Microsoft Corp.'s E-Forms Designer — won't do as well in this market, predicted Ullas Naik, an analyst at First Albany-Meta Technology Research in Boston.

Briefs

Firms ease client/server move

Informix Software, Inc., Hewlett-Packard Co. and **EMC Corp.** Dec. 20 announced a program to help companies move mainframe and other non-client/server warehouses to client/server systems. The Legacy Warehouse Migration Program offers a mix of hardware, software and consulting. It will move users to multiprocessor HP machines that use EMC's Symmetrix disk arrays and run Informix's relational database management system. Pricing will be set by individual engagement.

AT&T taps IBM's Guy

NCR Corp. has appointed Joseph E. Guy as vice president, retail store solutions and architecture. Guy joins AT&T from IBM, where he most recently was head of software at IBM Store Systems.

Scheduling a breeze

CrossWind Technologies, Inc. in Santa Cruz, Calif., has released Synchronize 2.0, enterprise scheduling software for Windows NT Server and Unix environments. Synchronize will be available in the first quarter. It costs $100 per user.

IPO for Red Brick?

Red Brick Systems, Inc. in Los Gatos, Calif., is expected to file an initial public offering (IPO). The company is one of the top vendors of RDBMSs for data warehousing.

Platinum snags Prodea

In a $36 million stock swap, **Platinum Technology, Inc.** in Oakbrook Terrace, Ill., has acquired **Prodea Software Corp.**, a vendor of on-line analytical processing (OLAP) products in Eden Prairie, Minn. Prodea's Beacon provides multidimensional views of relational data. Platinum will add Beacon to its line of query, reporting and analysis tools. Prodea will be a wholly owned subsidiary, officials said.

FileNet will buy Saros

FileNet Corp. in Costa Mesa, Calif., has announced that it has signed an agreement to buy **Saros Corp.** in Bellevue, Wash. FileNet will issue 2.2 million shares of common stock in exchange for the stock and options of Saros. The transaction is expected to close by April. FileNet is a client/server workflow and imaging provider. Saros is a document management company. "This merger will provide an integrated product suite which will incorporate best-of-breed technology," said Laura Del Gaudio, vice president of corporate systems at Bankers Trust Co. in New York.

Coda teams up with OLAP vendor

Manchester, N.H.-based **Coda, Inc.** has joined the growing list of client/server software vendors to team up with a provider of OLAP tools. Coda's partner is **Cognos, Inc.** in Ottawa. Cognos' PowerPlay and Impromptu OLAP applications will be integrated into Coda's accounting software.

Paradox 7.0

CONTINUED FROM PAGE 49

tions, including three-dimensional and shadow-framed choices, and a variety of page, time and page number options.

A Mail Merge Expert uses Microsoft's Word or WordPerfect's word processors to create documents. We created a simple letter to test the WordPerfect 6.1 Mail Merge feature, and Paradox 7.0 launched WordPerfect and automatically completed the merge in seconds.

Power design with ObjectPAL

Paradox 7.0's object-oriented programming language, ObjectPAL, has more than 100 new features, including electronic-mail functions that comply with the Messaging Application Programming Interface.

New features let developers control indenting and the color of object properties.

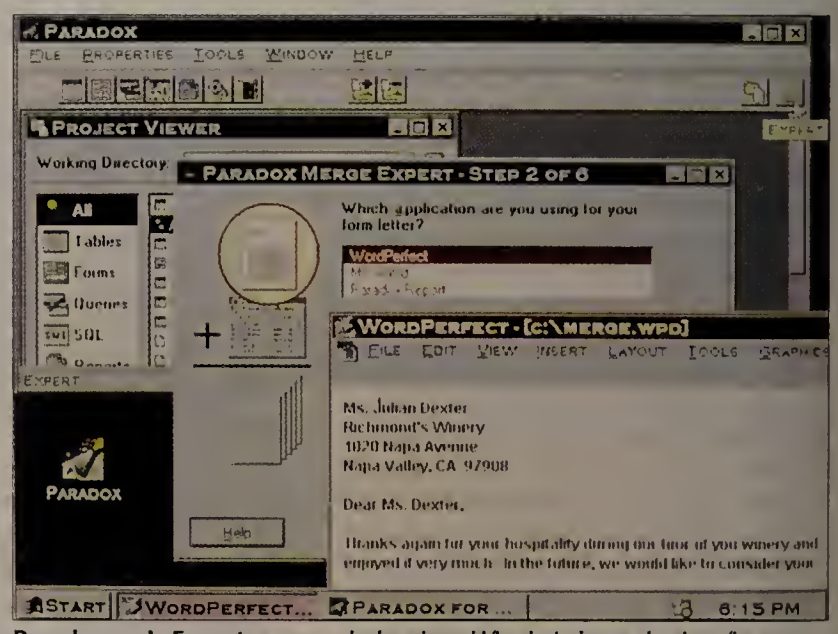
Other features provide syntax highlighting, 32,000 levels of undo, bookmarks and keystroke remapping.

Paradox 7.0's support of ANSI-standard SQL92, Borland SQL and Open Database Connectivity lets it provide front-end services such as queries to Oracle Corp., Sybase, Inc., Informix Corp. and other major databases.

In informal trials run on a clone 486DX2-66 with 16M bytes of RAM, Version 7.0's query by example, report generation and SQL queries ran noticeably faster than similar queries that were run using Version 5.

Paradox 7.0 also supports Microsoft Corp.'s OLE 2.0 controls, which lets users buy third-party add-ons. Version 7.0 can be used as an OLE controller and an OLE server.

Object Explorer, an update of Version 5's Object Tree, gathers and displays an application's events, properties and methods in a configurable, three-tabbed window.



Paradox 7.0's Expert *macros help simplify database design for programming novices and professionals*

We liked the convenience of navigating through a project using Object Explorer's hierarchical display. But we experienced some minor problems keeping the Explorer "pinned" on top.

In the "thoughtful touches" department, Paradox 7.0's Project Viewer lets you view a project's forms, tables, reports, scripts and so on.

The right mouse button provides a series of shortcuts during form and table design, calls menus, and lets you summon object properties through Object Explorer.

By deftly combining competent technology and intelligent design, Borland has transformed Paradox into a worthy competitor to Microsoft's Access.

Technical superiority aside, however, a free-standing Paradox faces an uphill climb in competing with a database that is part of a best-selling suite.

Millman operates the Data Systems Services Group, a networking and problem-solving consultancy in Croton, N.Y. He can be reached at hmillman@mcimail.com

If you exclude

the time it takes to learn, the money that it takes to train, the elusive reuse benefits, the resistance to change, the constantly arising trouble spots, the long lead times required to build applications from scratch, complex low-level programming languages, lack of scalability, the shortage of talent, limited platform support, the performance penalties, deployment challenges, heavy maintenance, difficulty in comprehension, and the expense of manually reapplying your customization,

object technology is quite beneficial.

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enterprise applications this chart reads an EKG.

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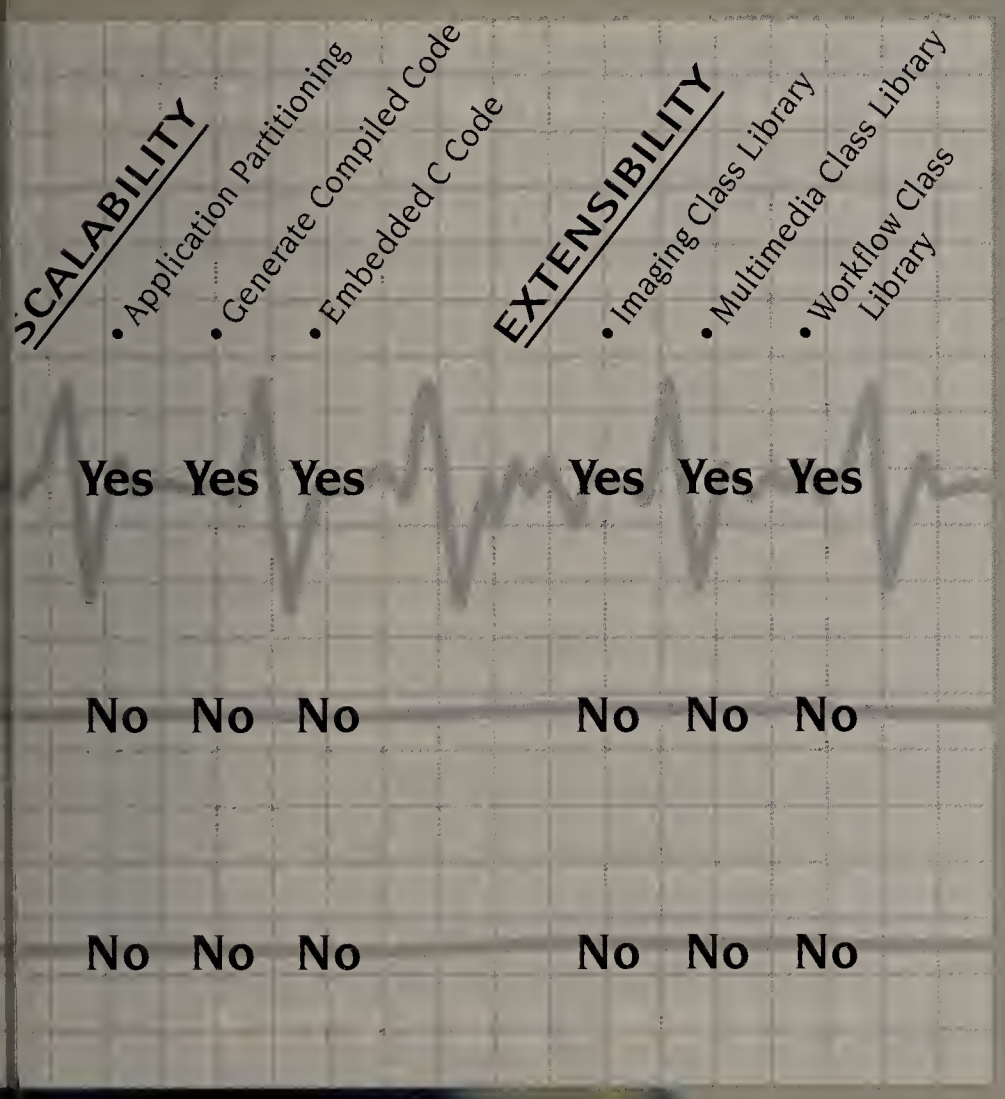
– Pat Garrehy, President, Relevant Business Systems



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ComNet to deliver product avalanche

By Bob Wallace

People who thought the Blizzard of '96 hit hard will find themselves much happier with the storm of new networking products at ComNet '96 in Washington this week.

Some of the more interesting products include the following:

• **NetSys Technologies, Inc.** will demonstrate Performance Baseliner, software that lets Cisco Systems, Inc. router users get a snapshot of traffic flows in their networks.

NetSys will also unveil Performance Solver, which lets managers perform what-if scenarios to assess the impact of changes and explore fixes to performance problems off-line. It can show use of network resources and application-specific traffic flows.

• **Ascend Communications, Inc.** will unveil the Pipeline 130 remote access router, which gives users choices in linking remote sites to corporate networks. It offers among the broadest support of wide-area links on the market, including Integrated Services Digital Network Basic Rate Interface lines, switched 56K bit/sec. bandwidth-on-demand connections and 56K bit/sec. digital data service (DDS) and frame-relay lines.

Internetworking

One longtime Ascend user said companies can save money by choosing the Pipeline 130 with a T1 interface over a low-end router and a separate T1 access unit.

At $1,895 for the combination, Ascend has "broken the price/performance barrier at around $2,000," said Robert Berger, chief technical officer at Interex Information Services, Inc. in Santa Clara, Calif. "Until now, no one had this functionality in one small, easy-to-use box at this price."

• **StrataCom, Inc.** will show off a suite of new products that will enable users to add more than just high-speed data to Asynchronous Transfer Mode (ATM) networks.

The vendor will unveil a lower-end eight-slot version of its 16-slot Integrated Gigabit Switch (IGX) ATM system. The new IGX-8 has 1.2G bit/sec. of bandwidth and can support high- and low-speed data connections, voice, frame-relay and ATM links from 128K to 155M bit/sec.

StrataCom will also introduce the IPX/IGX Port Concentrator, a device that boosts by a factor of 10 the number of ports its switches support and cuts prices by fourfold.

Also on tap is the IGX/IPX Voice Shelf, which enables the two switches to support more voice calls.

Coming out at ComNet

The following internetworking devices will be announced next week at ComNet:

Vendor	Products	Pricing	Availability
NetSys	Performance Baseliner and Solver*	$25,000 (201 to 700 routers) $15,000 (76 to 200 routers) $10,000 (1 to 75 routers)	First quarter
StrataCom	IGX-8 IPX/IGX Port Concentrator IGX/IPX Voice Shelf	$25,000 to $100,000 $20,000 to $40,000 $20,000 to $30,000	Second quarter First quarter Second quarter
Ascend	Pipeline 130	• ISDN Basic Rate Interface (BRI) support and T1 interface: $1,995 • Switched 56 and DDS support: $1,995 • ISDN BRI and DDS support: $1,995	Now Now Now

*Runs on Sun Microsystems, Inc. SPARCstations.

Eli Lilly takes the pulse of network performance with Remote Monitoring. See page 69.

Cheyenne rolls out speedy tool

By Bob Francis

Customers of network-backup leader Cheyenne Software, Inc. next month can expect a burst of speed and new access to Novell, Inc.'s NetWare Directory Services (NDS).

Cheyenne's ARCserve Version 6 will include a higher level of support for NDS, new agents to improve performance, live backup support for Lotus Development Corp.'s CC:Mail and centralized administration for multiple sites. The release also will

Cheyenne, *page 60*

Cheyenne's ARCserve Version 6 *offers a higher level of support for NDS*

IS managers find security in numbers

Pairing of NT Server, NetWare ensures uptime, reliability, scalability

By Laura DiDio

Steve Huff is hedging his bets.

He has to. He directs network services at The Williams Cos., a multibillion-dollar Tulsa, Okla., conglomerate that is in the midst of building a leading-edge enterprise network to serve 7,500 users nationwide.

Huff is the lucky guy charged with ensuring 100% network uptime, reliability and future scalability. "The second the network goes down, the phone starts ringing, so downtime isn't an option," he explained.

But from a practical standpoint, Huff said he couldn't find any single network operating system that sufficiently met all the company's criteria.

So, like many of his network administrator peers, he opted to implement both Novell, Inc.'s NetWare 4.1 and Microsoft Corp.'s Windows NT Server 3.51.

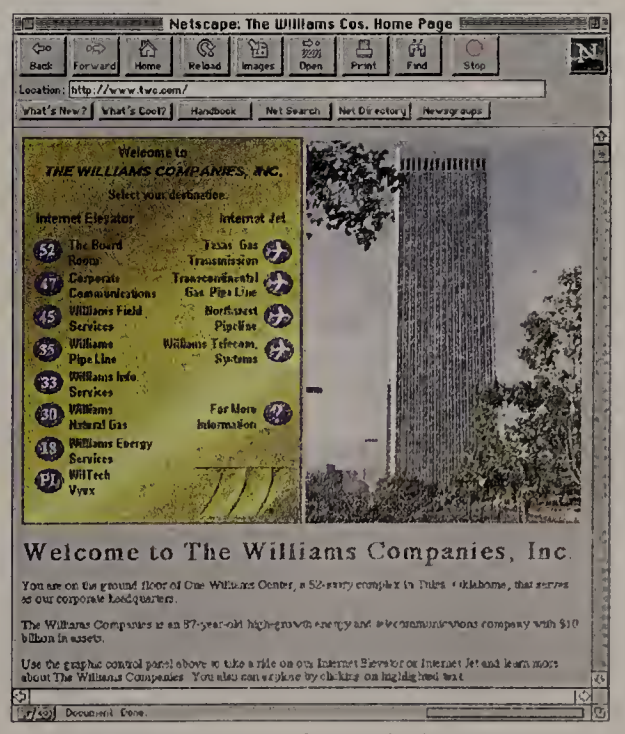
"It was a pretty clear-cut decision," Huff said. "NetWare 4.1 has more advanced directory services and superior performance and reliability on our administrative networks. NT Server 3.51 is a much more powerful applications server."

The combination of the two, he added, is a "very good insurance policy."

Bailing on Banyan

Until last fall, the conglomerate had spent nearly 10 years as a Banyan Systems, Inc. Vines shop. While Vines still met most of the firm's operational needs, Huff and members of upper management had grown increasingly concerned about Banyan's future.

"Many crucial third-party applications didn't run under Vines, and that was very limiting. We were also worried about Banyan refreshing Vines, and we frankly lost faith in Banyan," Huff said.



The Williams Cos. *is one of the nation's largest conglomerates. Its home page is pictured above.*

So The Williams Cos. forged a network operating system strategy that is effectively a 65%/25%/10% split — in

Operating systems, *page 60*

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Reliable

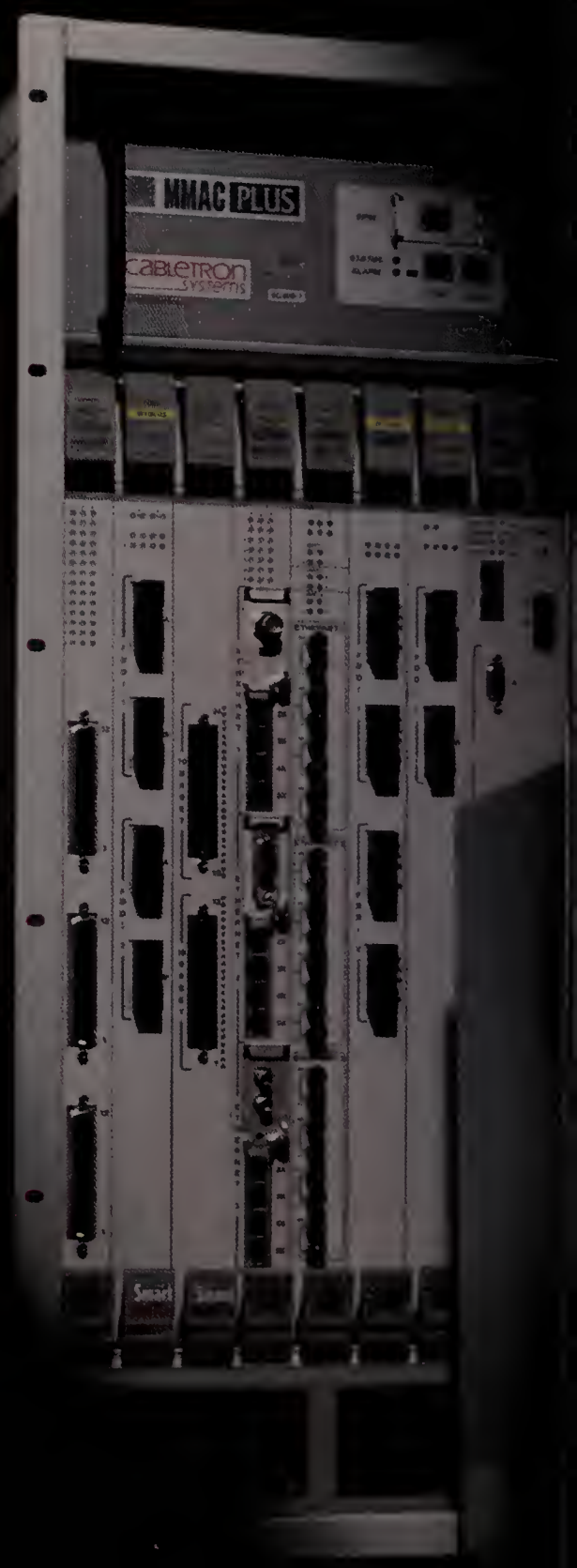
to handle your mission-critical applications

Flexible

to work in new or familiar surroundings

and Smart (of course)

to lead you to the ultimate in virtual networking



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Whether you're starting from scratch or building off an existing network, SmartSwitches are the perfect fit. The MMAC and MMAC-Plus SmartSwitches protect investments as they leverage the security and reliability of a "smart hub." The modular Workgroup SmartSwitch provides up to 48 switched Ethernet ports as well as a high-speed uplink, and includes many of the same fault tolerant features you'd expect from a Cabletron hub.

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New routers add speed, cost less

By Laura DiDio

Compatible Systems, Inc. in Boulder, Colo., has introduced the Advanced MicroRouter series of routers. They provide users with Internet access and multiprotocol wide-area network connectivity at speeds that range from 56K bit/sec. to T1.

New products

The latest MicroRouters are aimed at small and medium-size businesses that need the higher speed connectivity of 1.544M bit/sec., or T1, (and the 2.44 bit/sec. of E1, the European standard) and the security provided by dual-Ethernet firewalls.

The new routers — which have list prices that range from $1,495 to $1,895 — "are very affordable for those classes of users," said Eric Hindin, an analyst at The Yankee Group in Boston.

The Advanced MicroRouter series includes two Internet access routers — the 1200I and the 1220I — and two multiprotocol routers — the 2200R and the 2220R.

Each of the devices is equipped with two WAN ports. One WAN port is synchronous V.35, supporting speeds from 56K bit/sec. to T1/E1; the other is a synchronous/asynchronous RS-232C port, supporting speeds of 28K bit/sec. to 256K bit/sec.

The Advanced MicroRouter family will ship in February.

Cheyenne rolls out speedy tool

CONTINUED FROM PAGE 57

include a disaster recovery utility, a Windows 95 console and an optional RAID component.

Users said the additional support for NDS was an important feature. "They've vastly improved their support for NDS, which was lacking in Version 5," said Steve Glick, a beta user of the software and manager of networking and distributed computing at Dallas County Community College in Dallas.

The release lets users back up extensions to the NDS schema, and network applications, such as NetWare Loadable Modules (NLM), can make modifications to the NDS schema on installation.

> Cheyenne holds 59% of the NetWare backup market, according to market researcher International Data Corp.

Can't stop the mail

Because CC:Mail can't usually be shut off to allow for a backup, Cheyenne now saves the CC:Mail database files as the application runs.

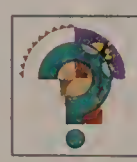
Cheyenne also is including a centralized job manager that allows network managers to manage as many as 100 separate installations of ARCserve from a single location. That will be an important feature as networks become larger, said Farid Neema, president of Santa Barbara, Calif.-based Peripheral Concepts, Inc., a market research firm.

Version 6 also adds a disaster recovery NLM that updates the network, so if the network goes down, users can restore basic NetWare services.

Easy on faults

New options from Roslyn Heights, N.Y.-based Cheyenne include JetServe, which is RAID fault-tolerance software that integrates into ARCserve. JetServe is priced at $1,995. For $495 per server, Cheyenne also offers push agents that boost performance. The agents are NLMs that are installed on secondary servers and prepare the data on those servers for backup to the primary server.

Prices for the new software range from $795 for up to 25 users to $1,895 for unlimited users.



The Architecture Machine Group

Operating systems

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NetWare 4.1's favor, with NT Server as a distinct but strong second. The remaining 10% of the firm's enterprise network operating systems are a mixture of legacy Digital Equipment Corp. Pathworks and IBM LAN Server.

The network is the linchpin for all communications among its nine operating companies. The setup includes 50 NetWare 4.1 file servers linked to a variety of Cisco Systems, Inc. 7000 series routers spread over the Tulsa headquarters and locations in Houston, Salt Lake City and Owensboro, Ky.

Approximately 20 Windows NT Servers are in place to handle specific vertical market databases in the operating companies.

"We saw an immediate performance improvement when we migrated from Vines to NetWare 4.1," Huff said. "We got four to five times better throughput in accessing desktop file-and-print services to the desktop, and electronic-mail messaging improved tremendously when we went with GroupWise on NetWare."

Perhaps the biggest gain with NetWare, he added, was "the availability of thousands of third-party applications."

Yet The Williams Cos. is somewhat concerned about Novell losing "some marketing presence" because of the Provo, Utah, firm's decision to sell off WordPerfect and exit the desktop applications business.

For the time being, Huff foresees peaceful coexistence between NetWare 4.1 and Windows NT Server 3.51 file server. "Both network operating systems are meeting our needs with minimal problems," he said.

The economics also are beneficial because both vendors give The Williams Cos. migration incentive discounts, he added. The downside is that it is "frustrating and comical to listen to the Microsoft and Novell representatives rat each other out on supposed flaws in the other guy's software," Huff said.

NetWare vs. NT Server

After several months of usage, Steve Huff, director of network services at The Williams Cos., rated the technical and marketing pros and cons of NetWare 4.1 and Windows NT Server 3.51:

Biggest NetWare advantage: Great file-and-print services and file server performance on administrative networks, along with tight integration between NetWare and Novell's GroupWise E-mail platform.

Biggest drawback with NetWare: Not knowing what Novell's long-term strategic direction is or where the company is taking the network operating system. Also, NetWare's capabilities as an application server lag behind Windows NT Server.

Biggest plus for Windows NT Server: Sheer momentum. Microsoft is hitting the market fast and hard, and that makes it easier to get approval for Windows NT Server-related purchases.

Biggest con for Windows NT Server: Concern over security issues and Microsoft's support for Novell's GroupWise package isn't as good as Novell's.

— Laura DiDio

Briefs

Fore! More ATM

ATM leader **Fore Systems, Inc.** and **General Instrument Corp.**, a cable and satellite systems maker, will develop an Asynchronous Transfer Mode (ATM)-based system that will enable cable TV providers to deliver high-speed two-way communications services over their existing networks to special cable modems hooked to home PCs. Fore also announced its first ATM adapter card for Apple Computer, Inc.'s Power Macintosh.

Frame for EDI

MCI Communications Corp. plans to offer frame-relay access for electronic data interchange (EDI). The new service, currently in beta testing, will allow frame-relay customers to connect directly to MCI's EDI network without special equipment or a separate connection.

Vanstar adds services

Vanstar Corp. is teaming with **Groupe Bull** and **Ingram Micro** to offer global PC network management services to U.S.-based multinational companies. Pleasanton, Calif.-based Vanstar will handle all customer contact and implement common billing and account administration worldwide. Ingram Micro will buy PCs overseas, and Groupe Bull will do desktop maintenance. Vanstar said its order-processing system should be integrated with Ingram Micro's late this year.

Suite for SNA debuts

Walker Richer & Quinn, Inc. (WRQ) this week will introduce a suite of its PC-to-host software that supports both SNA and TCP/IP connections. The Reflection Suite for the Enterprise supports Unix systems, IBM mainframes and AS/400s and will ship in early February for $449, WRQ said. OLE 2.0 support and a Visual Basic-compatible scripting language are included. The OLE support also is being added to a TCP/IP-only suite that WRQ released early last year.

Interlink expands

Interlink Computer Sciences, Inc. recently acquired **New Era Systems Services Ltd.** in Calgary, Alta., taking over the Harbor suite of integrated tools for backup and software distribution in enterprise client/server environments. Fremont, Calif.-based Interlink provides software for mainframe TCP/IP connection, fault tolerance, remote printing services and CICS-to-LAN application integration. The Harbor line adds support for LAN-to-mainframe backup and recovery, software distribution and a multiprotocol gateway, all administered from a policy database.

NDS tool offer

Cheyenne Software, Inc. in Roslyn Heights, N.Y., will bundle a sample directory services management tool with each copy of its ARCserve for NetWare backup software. The 45-day copy of DS Standard NDS Manager from Preferred Systems, Inc. in West Haven, Conn., helps users of Novell, Inc.'s NetWare migrate to NetWare 4.0's directory structure and manage the new environment.

New Products

Qualix Group, Inc. has rolled out NetProbe, a network security analysis tool.

According to the San Mateo, Calif., company, NetProbe scans a local network's address range to detect host misconfigurations that might allow unauthorized remote access from within or outside the firewall. It can run more than 85 tests and is updated frequently to include tests based on new advisories.

NetProbe is used from a single-host and tests any system that accepts TCP/IP packets. It automatically tests all hosts with no specification for required machines on the network. Once a security analysis is complete, NetProbe points to an applicable advisory and recommends appropriate security measures.

Pricing for NetProbe starts at $2,500. It is available for all network sizes.

▶ *Qualix Group*
(415) 572-0200

Lantronix Corp. has introduced Lantronix Network Analyzer, an Ethernet protocol analyzer.

According to the Irvine, Calif., company, the analyzer lets network managers monitor several network segments simultaneously to pinpoint the source of network problems. The product has problem notification features that augment the Simple Network Management Protocol and Remote Monitoring capabilities that are built in to some switches.

The product features a graphical interface-based management program that seeks all analyzers on a network and allows instant traffic capture and analysis from a monitored network segment. It monitors segments for packet collision levels, network utilization, total frames and bytes passed.

It also captures Ethernet packets and analyzes them for the conditions that cause the most network difficulties, including packet alignment and packet-size errors.

Pricing for Lantronix Network Analyzer starts at $2,995 for the two-port model.

▶ *Lantronix*
(714) 450-7227

Laser Communications, Inc. has introduced S Class, a wireless LAN connectivity product.

According to the Lancaster, Pa., company, S Class provides connectivity for Ethernet and Token Ring links in high-speed, line-of-sight laser transmissions for distances up to 700 feet. It was designed for short-range applications and provides secure connectivity without cables, reducing the cost of leased telephone lines and private cables.

Pricing for S Class starts at $7,495.

▶ *Laser Communications*
(717) 394-8634

Micro Design International, Inc. has introduced EZ Express 2.0, storage management for Novell, Inc. NetWare environments.

According to the Winter Park, Fla., company, EZ Express 2.0 automatically manages the migration of data from hard disks to optical media. It can redirect a request to the migrated files without recalling data to primary storage. It also lets users browse or use thumbnail views of migrated data.

EZ Express 2.0 installs in the user's primary server and manages the space on the hard disk, eliminating the need for an extra server and software. It creates symbolic link files in place of the original file that directs the user's request to the secondary optical volume. It offers the ability to send information back to the primary device based on data usage.

Pricing for the product starts at $1,595.

▶ *Micro Design International*
(407) 677-8333

Advanced Information Management has introduced AIM/LAN 2000, a contingency planning tool for LAN outages.

According to the Woodbridge, Va., company, AIM/LAN 2000 lets users identify and document in advance the impact of a LAN outage on required critical applications. It also helps organize recovery efforts with directions and checklists.

AIM/LAN 2000 includes extensive modeling capabilities to allow what-if analysis against the actual recovery needed.

Pricing for the product starts at $3,995.

▶ *Advanced Information Management*
(703) 643-1002

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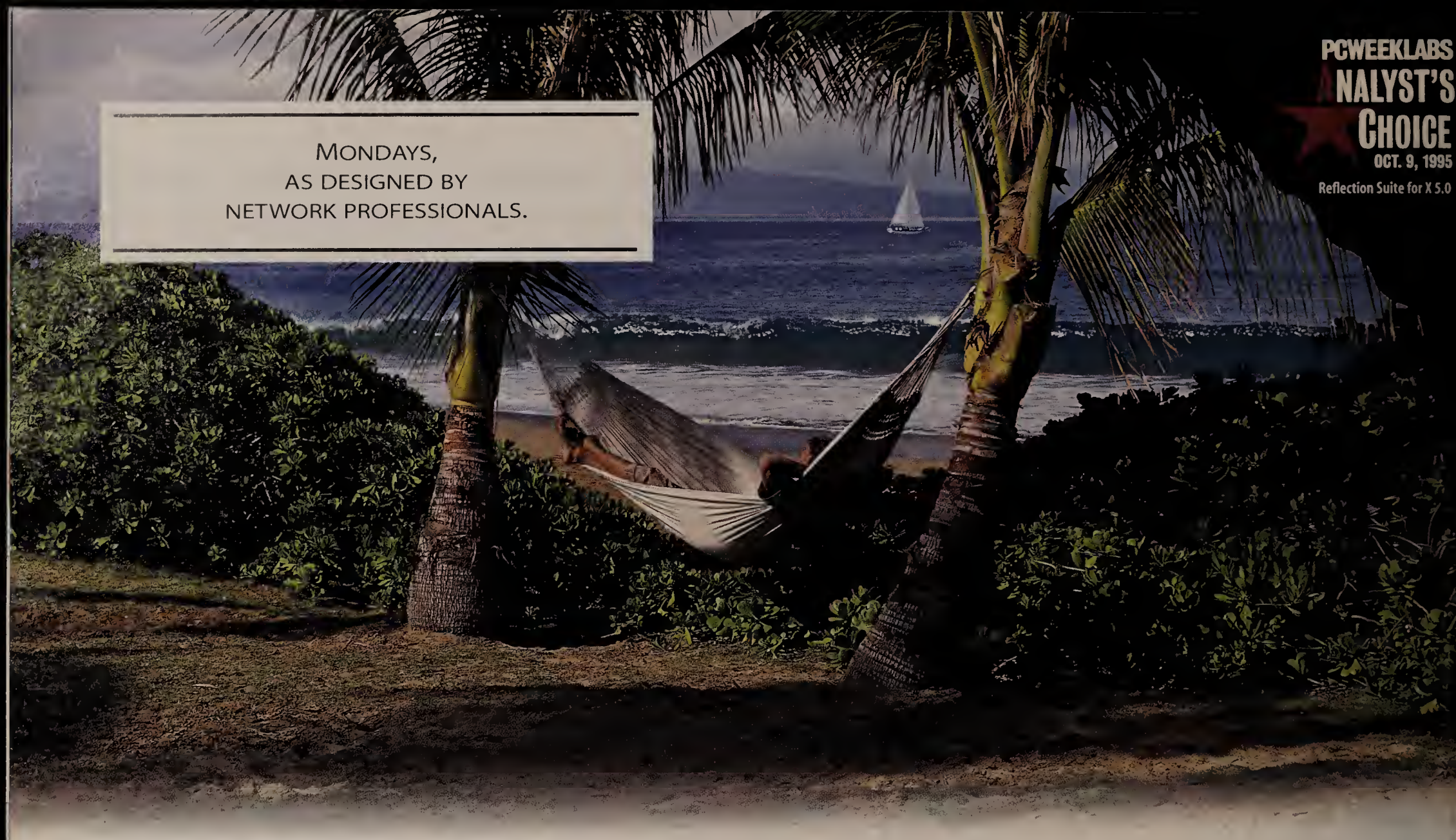

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WORLD WIDE WEB • INTRANETS • ON-LINE SERVICES

Internet EDI on horizon

Users worry that steep do-it-yourself security costs may spoil the view

By Kim S. Nash

Crotchety, 20-year-old electronic data interchange (EDI) is ripe for an injection of Internet technology, which would supply a newer data transport path that is significantly cheaper than the proprietary networks used today.

In fact, many observers see EDI as "the killer application" that will usher the Internet into mainstream information systems. But, as in most revolutions, the transition will generate a fair share of blood, sweat and tears, according to users and analysts.

Gnawing need

Adding Internet technology to EDI applications is "like solving world hunger," said Herb Phillipps Jr., technology vice president at Royal Bank of Canada in Toronto.

"Everyone's got a lot of ideas about how to do it and how beneficial it will be, but it's amazingly difficult," he said.

The situation boils down to this: The Internet is far less expensive than private, proprietary networks from EDI granddaddies GE Information Systems, Inc. (GEIS), MCI Communications Corp., Sterling Software, Inc. and others.

But — and it's a critical caveat — going Internet-only means IS folks will have to become EDI handymen.

"IS managers would have to pick up a lot of slack. That's just part of the deal" when you use a value-added network (VAN), said Torrey Byles, an analyst at Giga Information Group's Santa Clara, Calif., office.

Substitute systems

For example, users would have to build or buy their own security products and create redundant backup systems that kick in when Internet transmissions go awry, Byles said.

GEIS and several other traditional VAN providers have announced plans to add the Internet to their menus of EDI service offerings. But they have acknowledged that they can't offer the same reliability and availability assurances about the public network that they make for their own networks. Nor are the VANs willing to guarantee that EDI transactions sent over the Internet are 100% secure.

"We have no control over the Internet, so we can't tell you that you'll get such and such uptime or X degree of reliability," explained Alan Myers, a GEIS spokesman in Rockville, Md.

Thus, users seeking to cut costs by swapping out a VAN for the Internet (see chart) may end up spending more money building their own security mechanisms, such as internal firewalls, and other functions typically handled by VANs.

This do-it-yourself reality clouds the cost picture, Byles said. "It remains to be seen whether the Internet saves anyone money when you look at the total costs of doing EDI on it," he said.

Canadian Tire Corp. in Toronto has rejected Internet EDI, at least for now, for those very reasons, said Geoff Frodsham, the company's director of logistics re-engineering.

"We've been doing [private network] EDI for 10 years and have a tried-and-true way to get the work done," Frodsham said. "Why fool with it?"

However, other users are itching to put the Internet to work.

NASA's Ames Research Center and network equipment maker Cisco Systems, Inc., for example, are in the midst of full-bore Internet EDI projects, according to Byles.

"They figure that they already have a good internal [use of the Internet] infrastructure built, so they want to find more ways to use it," he said.

Money changes everything

Dramatically higher monthly fees for EDI services from private networks are driving some users to Internet-based alternatives

NUMBER OF EDI DOCUMENTS PER MONTH	INTERNET SERVICE PROVIDER COST	PRIVATE VALUE-ADDED NETWORKS COST
10 to 20	$20	$76 to $118
150 to 200	$45	$95 to $143
500 to 2,000	$45	$218 to $529
10,000 to 30,000	$400	$1,865 to $3,775

Source: Giga Information Group, Norwell, Mass.

EDI defined

Electronic data interchange is an electronic means for companies to place orders, track inventory and bill manufacturing and supply partners.

& **Dial-A-Mattress** is adopting electronic commerce. See page 69.

http:

Smalltalk

Devotees of and newbies to the Smalltalk object-oriented development language can peruse a wealth of Web resources.

HOT SITES

Book publisher Prentice Hall offers *The Art and Science of Smalltalk*. But before buying, interested parties can scan the book's table of contents, learn about its author and get a feel for what's inside the covers at **http://www-uk.hpl.hp.com/people/scrl/ArtAndScience/home.html**.

The Smalltalk Industry Council, or Stic, hosts a Web site that includes news about the programming language and a calendar of events related to Smalltalk. Membership information also is available at **http://www2.interpath.net/stic/**.

No tour of Smalltalk would be complete without a gander at one of the key FAQs at **http://www.cs.cmu.edu/Web/Groups/AI/html/faqs/lang/smalltalk/faq.html**.

Serge's Smalltalk Page provides general background on the language as well as information about various implementations, such as Smalltalk for Linux and Smalltalk for the Macintosh. The pages also sport links to other Smalltalk resources on-line. See **http://www.info.unicaen.fr/~serge/smalltalk80.html**.

For you joiners out there, several regional users groups host Web pages. Atlanta's Smalltalk user group is at **http://www.viaware.com/astug/index.html**; Washington's is at **http://www.pls.com/dcstug/python.html**. The European Smalltalk user group is at **http://esug.bdk.rug.nl**.

– Kim S. Nash

Briefs

InSoft unveils ICE

A new development environment from **InSoft, Inc.** in Mechanicsburg, Pa., lets users combine a whiteboard, a chat tool, desktop videoconferencing and multimedia development over the Internet. A server module manages the various multimedia and telephony capabilities, while multimedia applications created with the tool kit can be plugged in to the other services. Prices for modules of the Internet Collaborative Environment (ICE) range from $49 to $759.

Gartner provides on-line information

Gartner Group, Inc., a consulting firm in Stamford, Conn., announced plans to create a World Wide Web version of its @dvantage electronic product and technology information service. At the site, which is due to be launched in the second quarter, users will be able to read market research and items from several newsletters, including Esther Dyson's "Release 1.0" and Jeffrey Tarter's "Softletter." The original @dvantage continues to run on AT&T Corp.'s Interchange, a proprietary on-line service.

A Compass for the 'net

CompassWare Development, Inc. in New York has joined the growing masses of vendors that provide search engines on the Internet. The CompasSearch Web server offers natural language and concept-based searching. The software costs $9,999 for commercial Web publishers and internal corporate networks, or intranets, and $4,999 for educational and nonprofit organizations.

Converting Windows files to Web pages

Blue Sky Software Corp. in La Jolla, Calif., rolled out a tool that automatically converts any Windows help file to Web pages. The $199 Help-to-HTML Converter automatically turns each help topic into a separate Web page, generates hypertext links and converts graphics files into graphics interchange format. The converter, which runs under Windows 95 or Windows NT, also comes packaged with an add-on for Blue Sky's RoboHelp help development system and performs the same function.

SHORT TAKES **Microsoft Corp.**'s Web browser, Internet Explorer, currently is available in 12 languages, including Dutch, German, Italian and Spanish.... Toronto-based **Speedware Corp.** released a rapid application development tool kit for building Web applications.

Calvert takes its investors on-line

Service addresses security concerns

By Mitch Wagner

It's one small step for an investment house, one giant leap for on-line finance — or so the Calvert Group likes to think.

Calvert recently launched a new feature on its World Wide Web home page that lets its investors check account balances and recent transactions on-line.

This makes the Bethesda, Md., mutual fund company one of the first U.S. investment houses to take investor relations onto the Web. Many of its competitors and several U.S. banks are moving on-line, but most run through proprietary services because of security concerns.

A growing service

"These things are sprouting up all over the place. Which will be the most successful and best organized has yet to be seen," said Phoebe Simpson, an analyst at Jupiter Communications in New York.

Calvert officials said the company has addressed security concerns on the Web by weighing risk vs. convenience.

Investors who wish to check their balances can visit the company's Web site at http://calvertgroup.com and input their account number and ZIP code.

The account balance and the five most recent transactions — but not the investor's name, address, telephone or account number and ZIP code — are shown.

Would-be computer criminals would need to match both sides of the transaction to get any meaningful information. The account balance and transaction information they would receive would be more easily obtained through other channels, said Denise Simpson, marketing strategist for Calvert's Web site.

Easy access

The Calvert Group stores information on 300,000 separate accounts in two, 50M-byte flat files for on-line access.

Alpha server storage

The guts of the application is simple, said Lee Nienaber, Calvert's webmaster. The information for most of Calvert's 300,000 accounts is stored on a Digital Equipment Corp. Alpha server that runs a relational database from Oracle Corp. in Redwood Shores, Calif.

Each night, information is extracted using a home-brewed gateway and placed in two large flat files that run on the company Web server. The files are about 50M bytes each — one contains share balances and transaction information and the other contains information about regular periodic distributions such as dividends and capital gains.

Calvert chose DECthreads Web software developed at Ohio State University, which runs on VMS on a Digital VAX 47605A. When a visitor to the Web site inquires about an account, the inquiry generates a Common Gateway Interface script written in Fortran and C, which queries the flat files and returns the response.

Calvert decided to use flat files for the procedure to improve performance. The company also enhanced security by eliminating the live link to mission-critical account data in the Oracle database, Nienaber said.

The Calvert Group *is one of the first investment houses to take investor relations onto the Web*

& **The cost of building** a Web site is high. See page37.

Integralis rolls out 'smart firewall'

By Stuart J. Johnston

The exploding popularity of the Internet is heightening the danger of transmitting computer viruses hidden inside electronic-mail messages.

One way to fight back could be found in a software gateway shipping from Integralis, Inc. in Woodinville, Wash. MIMEsweeper 2.0 lets information systems managers put an intelligent gateway between the Internet and their companies' internal networks.

Antivirus software

MIMEsweeper 2.0 intercepts all messages passing to or from the Internet, disassembles them and submits them to whatever antivirus-scanning utilities users choose. Then it automatically quarantines infected messages.

Uninfected messages are reassembled and passed on to their intended recipients.

MIMEsweeper 2.0 works with any vendor's antivirus product, including Symantec Corp.'s Norton Antivirus. It will disassemble even complex messages such as files encoded using the Internet's uuencode algorithm. It also will handle message attachments in the Multipurpose Internet Mail Extension (MIME) format.

An earlier version of the product worked only with Lotus Development Corp.'s CC:Mail systems. It didn't support E-mail transmitted using the Internet's Simple Mail Transfer Protocol, said Victor Woodward, president of Integralis. The company is a wholly owned subsidiary of U.K.-based Integralis Ltd.

"Everybody has gotten used to the idea that you don't swap floppy disks, but macro viruses come in in a document that you send over the Internet, which is far, far easier to do," said Chris Le Tocq, director of software research at Dataquest, Inc. in San Jose, Calif. "[MIMEsweeper 2.0] is like a smart firewall."

Some users also like the idea, although they were taken aback by the price — $2,500 for the first 100 users and $7,000 for 1,000 users.

"I would get really interested [in MIMEsweeper 2.0] if it was priced differently," said Greg Scott, information services manager in the college of business at Oregon State University in Corvallis. Scott admitted that corporate users are likely to have more money to spend on a product such as this, but added, "I don't think they are going to get widespread adoption at that price."

Promising future

Don Barker, associate professor of information sciences at Gonzaga University in Spokane, Wash., also was concerned about the price but disagreed about the potential market. "Corporations will be inclined to pay for it, so a product like this probably has a pretty good market," he said.

Integralis is planning a string of releases in the coming months. Forthcoming is MIMEsweeper support for the following:

- Microsoft Corp.'s Mail in mid-February.
- Novell, Inc.'s GroupWise in March.
- Notes in April.
- The World Wide Web and other Internet protocols in June.

The company also will release a version that directly supports Microsoft's Exchange messaging server around midyear, an Integralis spokesman said.

Symantec to the rescue

Symantec last week announced that its Norton Antivirus will support detection and repair of damage caused by so-called macro viruses.

These computer viruses, which are growing rapidly in popularity, are hidden in macros inside word processing documents.

Only five macro viruses are known, and all of them were designed to infect documents created in Microsoft's Word.

But the potential damage is enormous, said Alex Haddox, a senior product specialist at Symantec's Antivirus Research Center in Santa Monica, Calif.

The problem is exacerbated by the fact that many people routinely send Word documents in E-mail. And because Word macros can be transferred easily among Windows 3.x, Windows 95, Windows NT and Macintosh versions of Word, they also are multiplatform viruses.

Code to implement the macro virus detection and repair can be downloaded from Symantec's on-line Internet site (http://www.symantec.com) and various commercial on-line services.

— Stuart J. Johnston

New Products

Executive Technologies, Inc. has introduced HotSearch, full-text retrieval software.

According to the Birmingham, Ala., firm, HotSearch lets users locate information in documents downloaded from the Internet. It ranks retrieval of documents in order of relevance, fuzzy, agent, Boolean and range searching of date and number fields.

HotSearch lets users index Hypertext Markup Language, Adobe Systems, Inc.'s Acrobat and word processing documents.

HotSearch costs $39.

▶ *Executive Technologies*
(205) 933-5494

Quarterdeck Corp. has unveiled InternetSuite 2.0, a graphical front-end software package for Internet users.

According to the Marina del Rey, Calif., firm, InternetSuite 2.0 includes the following: a global chat utility, a CyberSitter utility that lets users lock out selected World Wide Web pages and newsgroups and an audio and motion video utility.

InternetSuite 2.0 costs $40.

▶ *Quarterdeck*
(310) 309-3700

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Corporate Strategies

CASE STUDIES • TRENDS • OUTSOURCING

IS springs into action at bed supplier

By Thomas Hoffman
LONG ISLAND CITY, N.Y.

As a young man growing up in Oklahoma, Don Cantwell held a number of odd jobs, including a stint as a concrete truck driver.

That's a good thing, because as the recently installed chief information officer at Dial-A-Mattress, Cantwell will need as much grit as he can muster to direct the information systems strategy for the direct marketer of bedding supplies.

Dial-A-Mattress' Don Cantwell *oversees recentralization and Internet projects*

Cantwell has stepped into a position that is fraught with challenges and opportunities. In the past five years, sales at Dial-A-Mattress have exploded by 700%, to $78 million last year.

That success stems, in large part, from the compa-

Dial-A-Mattress, *page 72*

Workflow in the pipeline

Canadian utility's system will be a rarity — it's Mac-based

By Tim Ouellette

Some pipeline workers don't need to count on big iron to get the job done.

TransCanada PipeLines Ltd. in Calgary, Alberta, is maintaining its investment in Macintoshes while installing a 1,000-seat workflow and document management system to support its push into international ventures.

The system will give users across the country faster access to project data and a way to maintain closer contact with other employees.

About 2,400 TransCanada employees across the country use Macintoshes to help maintain and extend TransCanada's natural gas pipeline, which stretches across Canada and northern portions of the U.S. Workflow and document management pilot projects are running in the international ventures and energy groups. The information systems department also is piloting a workflow project to provide better service to its widespread user base. All told, about 11 pilot projects are running companywide.

Workflow software automates and tracks the movement of work items around an organization; document management software acts as a central repository for organizing electronic documents. Macintosh-based workflow systems are rare; the market is dominated by Unix and PC-based systems.

To help make the most of its Apple Computer, Inc.

Pipeline, *page 72*

TransCanada's workflow *and document management system will support its push into international ventures*

Eli Lilly's network stays healthy with Rmon

By Patrick Dryden

Pharmaceutical giant Eli Lilly and Co. has implemented about $400,000 worth of monitoring gear to take the pulse of network performance and chart its health.

"Networks used to be backroom stuff, but we needed to mine data from the network so [information technology] could improve customer service levels," said John Kisel, executive director and information officer at the company.

To do this, Lilly added network performance tools based on the Remote Monitoring (Rmon) management specification. Smart modules in a hub or stand-alone probes attached to a LAN track use statistics locally and forward historical data or captured packets to a central analysis program via the Simple Network Management Protocol.

Network performance tools *help Eli Lilly and Co. chart the health of its networks*

"Rmon removes the unknowns about response time," said Tom Reinsel, network management systems team leader in charge of Lilly's Rmon effort. "Now we can actually pinpoint the cause for slowdowns."

His team has deployed Hewlett-Packard Co. LANprobes on 160 Ethernet LANs at Lilly's Indianapolis headquarters and sites across Indiana. Central administrators can watch those LANs with HP's NetMetrix Internetwork Analysis System.

Around the clock, Rmon tools monitor availability, use and response time on each far-flung LAN. Lilly's managers for the first time have baseline performance data to help them find bottlenecks, understand the impact of changes and new applications, and plan capacity needs, Reinsel said.

Before he installed the Rmon tools, an engineer equipped with a Network General Corp. Sniffer protocol analyzer had to diagnose a LAN when users called to complain about slow response. Now, "telecom calls us to warn about problems proactively," said Kevin Flaherty, a distribution systems project leader at Lilly. Flaherty's order processing and warehouse management system handles more than 1,500 orders daily for 600-plus products. Advance notice let him shift workers at one warehouse to a different LAN when a router began to act up. Flaherty also was able to avoid slowdowns by detecting increased hub use at another site.

Mike Wiley, a senior telecommunications systems analyst at Lilly, said Rmon help has streamlined his job. He can track "oddball" protocols to consolidate users on TCP/IP and models client/server traffic flow to recommend the best location for new Windows NT servers.

Best of all, baseline reports help eliminate finger-pointing when information systems groups diagnose user complaints about slow applications.

Searle Pharmaceuticals switches hardware to outfit sales force. See page 39.

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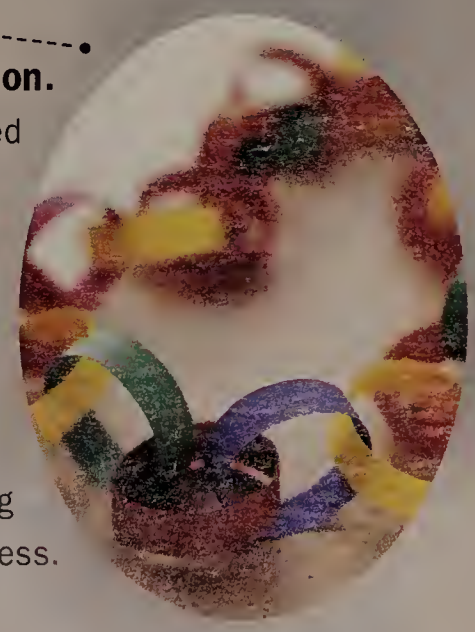

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Canadian public up to its CHIN in on-line history, culture

By Suruchi Mohan

Museums may be the caretakers of history, but modern technology is invading those hallowed institutions to make that history more readily available.

For example, the Canadian Heritage Information Network (CHIN), a program from the federal government's Department of Canadian Heritage, aims to provide information on parks, cultural activity, the arts, multicultural issues and the Canadian identity.

Archives on-line

Last fall, CHIN broke new ground in museum circles by unveiling on the World Wide Web a service called the Guide to Canadian Museums.

CHIN is on-line with its three national inventories, which encompass the humanities, natural sciences and archaeological sites.

"CHIN's application has a social tone and value that is rare," said Jim Bair, research director at Gartner Group, Inc. in Santa Clara, Calif. He said the Internet is perfectly suited to such a venture. "It doesn't matter if you're inside the organization or outside; all you need is a browser," Bair said.

So far, only Canada and France are making efforts to bring museum information to the masses via the Web, said Jane Sledge, systems project manager of the art history information program at the J. Paul Getty Museum in Santa Monica, Calif. Sledge has been following CHIN's pioneering efforts. The document management software behind these efforts is Basisplus from Information Dimensions, Inc. in Dublin, Ohio.

Basis WebServer is the interface to the Web. Museum clients can use any browser to access information on the database, said Gail Eagen, director of systems and access at CHIN in Ottawa.

Research advantages

"The WebServer is [useful] if I want to research specific artists across the country because there is no other means to do it," said Pierre Landry, associate curator of Canadian art at the National Gallery of Canada in Ottawa.

"A major advantage to the document management system is the ability to handle full-text indexing and large and diverse types of documents," Eagen explained.

The software provides access to a thesaurus, to help with keyword searching, and has a bilingual interface in French and English.

Basisplus also can refer the user to images, which is a big plus in a museum environment, Eagen noted.

The images can be juxtaposed with text, which wasn't possible under the legacy mainframe environment that hosts the national inventories.

CHIN has had a Web page that provides general information about the program since the summer of 1994.

But now CHIN's clients, which include schools, the general public and other museums, can go to http://www.chin.gc.ca and request information.

The mainframe-based system, which required users to know commands to get information, limited the use of the national inventories, Eagen said.

But the Web, with its friendly interface on the one side and a powerful document management system on the other, has changed that.

Landry sees the benefits that Web technology provides the public, but he said for his specialized work, he still uses the system he cut his teeth on 10 years ago.

That is because much of the information he needs is so specific to his organization that it isn't uploaded on the national database. Landry still types in his commands to get that information.

Dial-A-Mattress: No rest for IS

CONTINUED FROM PAGE 69

ny's effective use of communications technologies, such as AT&T Corp.'s Automated Call Distribution software. The company uses the product to route customer calls among Dial-A-Mattress' call centers here and in Maryland and Florida.

By evenly distributing customer calls among "bedding consultants" at its trio of telemarketing centers, Dial-A-Mattress has been able to build a solid reputation for service and convenience.

Meanwhile, at its headquarters here, key managers carry pagers to communicate with one another and track vital sales statistics.

Dial-A-Mattress "has been at the cutting edge of communications technology" since the company was launched in 1976, said Roy Unger, a bedding industry consultant in Barrington, Ill.

But in its 20-year history, Dial-A-Mattress also has gone overboard with some technologies, deploying 38 disparate systems throughout its enterprise. "We had a tremendous user training problem here," Cantwell said. "None of the systems talked to each other."

To better manage the IS infrastructure, Cantwell last October directed an effort under which Dial-A-Mattress standardized on TCP/IP-based networks. He declined to discuss the costs involved.

Snafu solved

The move also helped solve a communications snafu between the firm's IBM RS/6000 Model 570 production system and the SCO, Inc. SCO Unix-based bar coding system that is used to track inventory in Dial-A-Mattress' warehouse.

Perhaps more importantly, the company standardized on a common desktop applications set — Microsoft Corp.'s Office for Windows 95 suite that runs on top of Intel Corp.-based PCs.

Dial-A-Mattress' 330 employees had been using a mix of desktop packages that included IBM's OfficeVision/400 system and Microsoft's Windows for Workgroups software.

Customer service

By standardizing on one set of office applications, the firm's IS staff has been able to support end users more effectively.

The company's IS team "is looking at us like we're customers now," said Donna Riggi, merchandise manager at Dial-A-Mattress. Before the project, "if we didn't know how to fix the systems problems ourselves, we were out of luck," she added.

But not everyone at the company is completely satisfied with its IS operations. The firm's sales division, for example, is disappointed that IBM's CallPath communications software still is missing features such as call tracing.

The software has managed to knock 10% off the company's $1.4 million annual telephone bill by eliminating crank calls.

But CallPath hasn't fulfilled its guarantee of tracing the path of customer sales calls from start to finish, said Greg Nooney, director of sales at Dial-A-Mattress. Cantwell said call tracing should be delivered by year's end.

He said the firm is planning to integrate an as-yet unchosen relational database for its IBM RS/6000 system and connect the software to its AT&T Corp. Definity private branch exchange system.

Firming up a 'net strategy

Despite having enjoyed tremendous success in the past 20 years with its nontraditional telemarketing sales approach, Dial-A-Mattress is treading carefully when it comes to pitching its wares over the Internet.

"Nobody knows how to skin the cat with selling in cyberspace," said Don Cantwell, the company's chief information officer.

Dial-A-Mattress is proceeding cautiously toward electronic commerce, even though it has had a home page on the World Wide Web for two years (http://www.sleep.com\dial-a-mattress).

K2 Designs, a Web designer and Internet access service in New York, hosts Dial-A-Mattress' home page and server. But that's likely to change because the bedding seller plans to bring its Internet server back in-house, said Cara Halstead, manager of public relations and interactive media at Dial-A-Mattress.

The firm plans to use the Internet server for intranet electronic mail and to electronically download software upgrades from key vendors by early next month, Halstead said. "There's no sense diving in headfirst with electronic commerce when there's no water there," she added.

— Thomas Hoffman

Pipeline

CONTINUED FROM PAGE 69

machines, TransCanada turned to Odesta Systems Corp.'s Livelink, a VAX server-based system. The software's user-interface features played a major part in TransCanada's decision.

Many vendors' cross-platform interfaces don't take full advantage of the Macintosh's ease of use and features, said Scott Chate, senior technical specialist for IS at TransCanada. The Odesta system "added a lot of value to our environment," he said.

But the system needed to be powerful enough to handle the changes going on at TransCanada. "We need to go beyond our mainline piping of gas as a utility to energy management," Chate said.

Therefore, in terms of computer systems, "we need a total concept," he added. This requires more than just document management.

Users need a way to collaborate on projects and have tasks automated so they can hit contract deadlines for jobs in places such as Tanzania and Colombia.

The system is up and running for 150 users, and the International Ventures Group is looking to organize and manage the documents associated with bidding on major contracts. Then it will look into workflow's routing capabilities.

A fitting project

And because Livelink's collaboration environment is based on the idea of a project, it fits around the international department's strategy, Chate said. For example, users already are participating across Canada in the on-line and threaded discussions that deal with project proposals.

But the document management features of Livelink also are helping out in everyday duties. TransCanada uses the software to help manage the piles of documentation required for regulatory submissions to Canada's national energy board. The software has cut down the overall time it takes to prepare, collect and send the documentation, but specific figures weren't available.

& **Forms — the electronic kind,** that is — live on. See page 52.

Prudential testing AT&T's interworking service

Users mix and match frame-relay and ATM sites

By Neal Weinberg

The Prudential Insurance Company of America has turned to a new technology called frame relay-to-ATM service interworking to help meet growing demands on the company's wide-area network infrastructure.

Prudential is one of the first companies to test AT&T Corp.'s interworking service, which allows a user to mix and match frame-relay and Asynchronous Transfer Mode (ATM) sites.

Networks

Prudential is midway through a lengthy testing period and hasn't committed to deploying interworking yet. But based on some positive early results, the company anticipates a gradual, application-specific rollout, said Bill Rush, vice president of information systems.

Prudential currently uses a hybrid of private and public lines that range from 56K bit/sec. to 45M bit/sec. at its 2,000 locations worldwide. In addition to insurance, Prudential has financial services, real estate and managed health care businesses.

The network "has been satisfactory for what we've had to do to date," Rush said. But new applications, including imaging, video and Notes, are threatening to strain the network. "We just can't continue with traditional solutions," Rush said.

Prudential already has a well-established frame-relay network for transporting data. But before deploying frame relay at additional sites, Rush said he wanted to "come to grips with where we are going as an enterprise."

Plugging in

That's where interworking comes in. Rush said it allows him to "plug those locations that require frame right into the ATM network; that's the big payoff." The interworking service makes the translation between ATM's fixed-length cells and frame relay's variable-length frames. If interworking didn't exist, users would have to set up separate frame-relay and ATM networks.

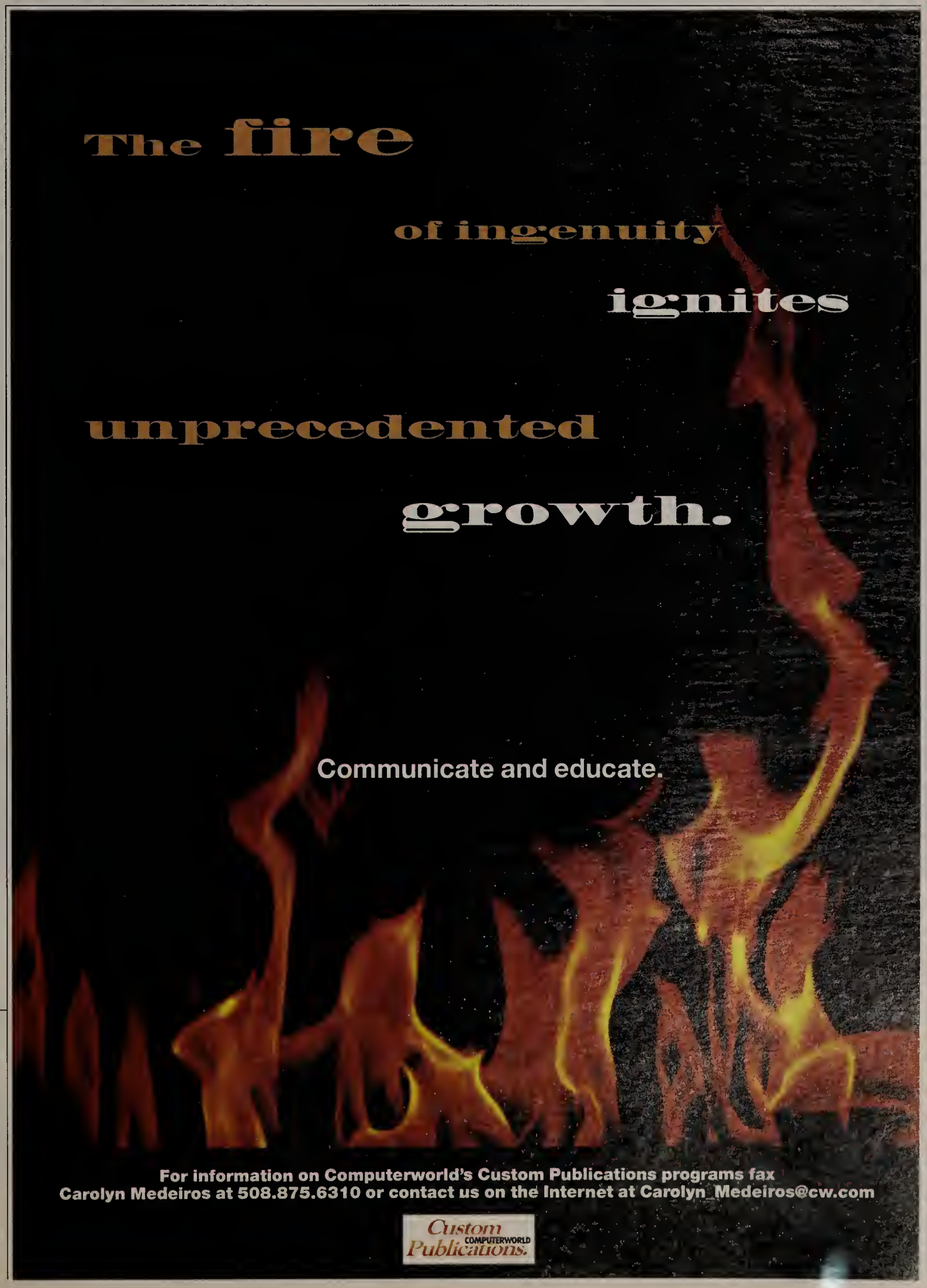
Beth Gage, an analyst at TeleChoice, Inc. in Verona, N.J., said interworking is ideally suited for companies that have frame relay at remote locations and want to add ATM at the corporate hub.

Rush said Prudential has some business units that could benefit immediately from ATM, which can transport voice, data and video and which offers higher speeds than frame relay. For example, remote vaulting of Prudential insurance and financial data is "a slam-dunk ATM solution," Rush said.

The health care business could use ATM to transmit X-ray images and set up medical videoconferences. At Prudential's mainframe sites, ATM offers the high bandwidth needed for large file transfers, Rush added.

Rush said he ran into some problems in the early testing process because equipment from some vendors "was really not positioned well at all for ATM." Rush declined to name those vendors.

But with those bugs out of the way, the frame/ATM interworking "looks damn good," he said.



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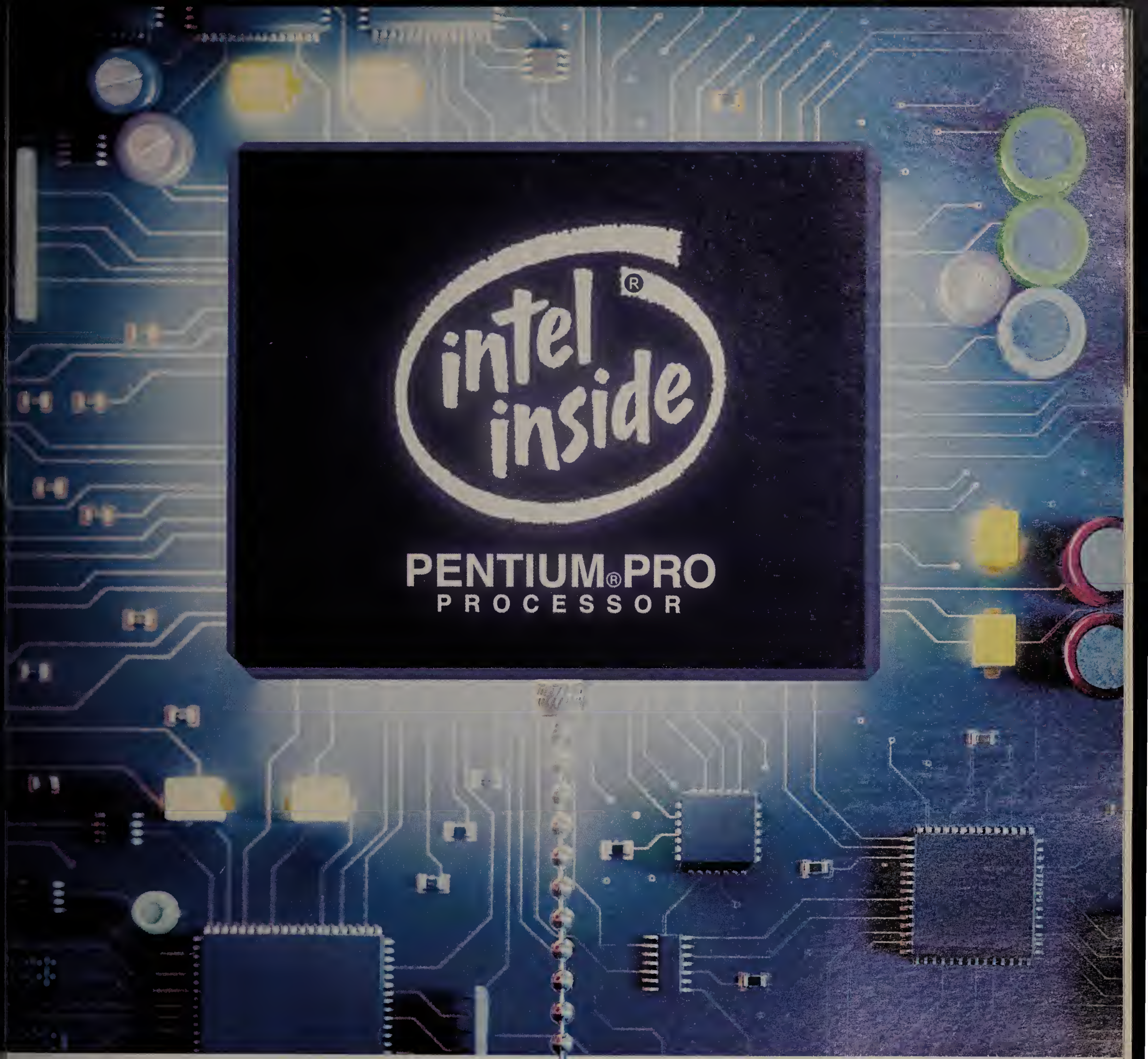

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NEW! Workshops for IS managers. See page 82.

Managing

Generation gap

Young programmers with hot skills can earn twice as much as their veteran counterparts. IS managers must balance the two or risk a mutiny.

By Jean S. Bozman

ANDY FREEBURG

When the California State Automobile Association started its switch from mainframe to distributed computing, CIO Julie Gabelmann gathered the 355-member IS staff to communicate her message

CONTINUED FROM PAGE 1

often feel out of place as young up-and-comers are hired to handle C++ object-oriented programming or modify packaged applications from SAP America, Inc. or Oracle Corp.

What hurts the forty-something programmer most is the age factor. "You get the impression they feel they're 'better than thou,' and they're only 25 or 30 years old," says the West Coast programmer.

Sometimes, the old and the new live under the same roof. When this happens, the two groups often avoid eye contact in the office and avoid each other in the lunchroom.

"The old-timers look at this new technology and say, 'How much of this is really real vs. smoke and mirrors?' There's a resistance, even to go back to school — to start listening, reading, to take classes," says Bill Noffsinger, an applications development manager at the University of Florida at Gainesville.

Other information systems managers agree. "Our careers last considerably longer than the lifetime of products in the computer industry," says Bill Schimoler, vice president of global LAN services at The Chase Manhattan Bank NA in New York. "So we face the problem of sticking with something we learned well and riding that wave as long as we can or looking for a [new] technology [to learn] as soon as we've really mastered one." Old-timers can catch up financially with young hotshots if they're willing to learn, he says.

Old skills, young skills

Age isn't the only factor. Young people from technical schools may have learned Cobol instead of the more modern Micro Focus, Inc. Cobol or C++. "I wouldn't call it old people and young people," says Mike Johnson, president of Texas Triple-I in Houston, which hires programmers who work with SAP America's scripting languages. "I would call it old skills and young skills."

A Step toward open systems

F.Y.I.

To improve quality while cutting costs and lead times, manufacturers are pushing their suppliers to integrate with their computer-aided design (CAD) systems. This has streamlined matters for final assemblers but added costs for suppliers.

"We have four or five different CAD systems at each design center just for communicating with our customers," says Karl Wood, information technology manager at automotive supplier Dana Corp. in Ottawa Lake, Mich.

In response, suppliers are pushing the Standard for the Exchange of Product Model Dating (Step), a draft International Standards Organization standard that promises open systems for exchanging product design data.

"Step has emerged as doable and viable, but there are still debates as to how far the protocols should go," says Bruce Jenkins, vice president at Daratech, Inc., a CAD market research firm in Cambridge, Mass. He adds that Step is important to information systems managers because it involves data from front-office systems and, in the long run, will prove vital in keeping manufacturing companies globally competitive.

The Automotive Industries Action Group in Southfield, Mich., is sponsoring an early test of Step. In one test, Dana exchanged three-dimensional geometry, part dimensions, surface characteristics and mass properties data with General Motors Corp.

The problems? They're mostly mundane, such as getting the Step translators to work with different versions of Unix, the CAD package or both. It took six months to attain 98% translation accuracy. That's not good enough for today's zero-defect standards in the auto industry, but it is good enough to proceed with the next phase: testing data exchanges with smaller upstream suppliers.

— Tony Baer

"Experienced people command 50% salary premiums" for being whizzes at the hot skills, says Dennis Fennessey, a partner at Deloitte & Touche Consulting in New York. He estimates that those who know SAP America products command 50% to 100% more pay than those with Cobol skills alone, while those skilled in Oracle's Financials can earn 25% to 50% more.

When corporate mainframe operations are outsourced, old-timers are sometimes "re-badged" — they leave a firm right behind the big iron and take a job with the outsourcer. Out of sight, out of mind.

But most companies find this is an unwise solution. The veterans know a great deal more about their firm's business processes and rules than the newer workers. The disciplines of the mainframe operation, including job scheduling and systems management, are still valuable, especially as client/server systems are linked throughout a corporate network.

A team effort

Managers are increasingly calling on old-timers and newcomers to work together on re-engineering projects. "It turns out that the individuals who have the gray hair have been working with the end users for years, and the individuals with the new technical skills have not," says Frank Dzubeck, president of Communications Network Architects, Inc., a Washington consulting firm. "It's a blending of these skill sets that has to take place."

Many IS organizations are achieving this blend by teaming veterans and newcomers. Teaming helps Chase move more into distributed computing and maintain links to several large data centers. And working in teams helps reduce intergroup tensions. "Over time, as the folks work with each other, they start developing an appreciation for each others' skills," Schimoler says. "Frequently, it's an off-site meeting that forces people to work on a collaborative task together."

Typically, an off-site setting is needed when a re-engineering project transfers mainframe functions to client/server systems. Often, a professional facilitator is called in to keep everyone focused and on track — and prevent them from throwing verbal darts.

Some IS managers attempt to avoid rivalries before they start to make sure newcomers blend in. "We go out once or twice a year and recruit a class of four people," says Dick Lester, IS vice president at Associated Grocers, Inc., a $1.2 billion grocery wholesaler in Seattle. "Then we put them through four months of on-the-job training in a classroom," with IS staffers teaching most of the classes, he says. Some of those Associated Grocers recruits are hotshots with client/server programming skills; others are just out of school.

The new craze

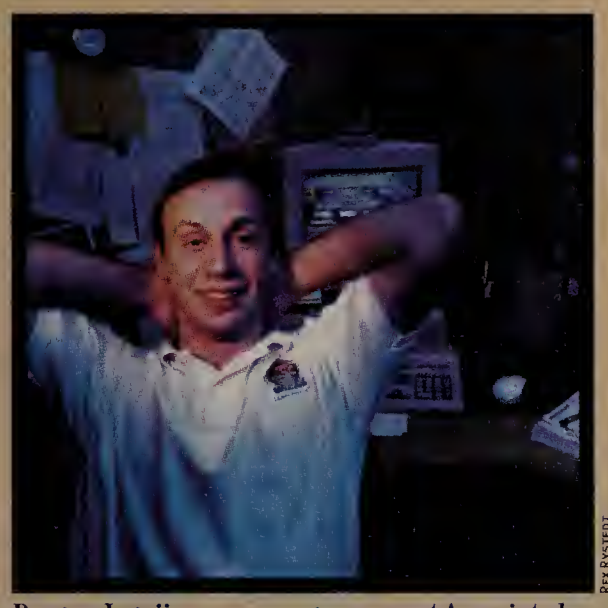
Blending is clearly "in." The California State Automobile Association (CSAA) has put together self-directed teams of business and IS workers that make everyone a peer. The groups of five to 10 people have brought back "phenomenal" results, says Chief Information Officer Julie Gabelmann, because "each individual generally brings multiple talents to the table." Helping veterans gain new skills is key, Gabelmann says. "It's part of our culture to bring them forward."

At CSAA, which recently began its move from mainframes to distributed computing, the emphasis is on talking about change. Gabelmann recently spoke to the entire 355-member IS staff at one gathering just to make sure plans were clearly stated. "It's almost got to be an over-communication," she says. "You can't leave this to chance."

With the proper training and encouragement, even old-time Cobol dinosaurs can turn into hotshots, IS managers say. The key to successfully blending old and new talents is having the patience to help veterans learn new skills while convincing newcomers that longtime staffers possess valuable business knowledge. Making sure all this happens — and that no fistfights break out in the lunchroom along the way — is a test IS managers must pass with flying colors. ■

Bozman is the research manager at International Data Corp.'s Unix and advanced operating environments service in Mountain View, Calif.

Jumping the gap



REX RYSTEDT

Dragan Jagnjic, once a programmer at Associated Grocers, read the writing on the wall and boned up on Unix. Encouraged by management, most of his colleagues have joined him.

Dragan Jagnjic started programming mainframe Cobol at Associated Grocers in 1987. But 1991 brought a change of direction at the grocery chain, with a move to Unix servers. Jagnjic took that as his cue to learn new skills.

"I wanted to better myself," he says. "People had been talking about moving to a distributed platform, and I wanted to get the jump on it." He took off-site classes and on-site training seminars. Now he is Associated Grocers' systems architect.

Some IS managers say as few as 40% of old-style mainframe programmers make the jump to distributed computing. Some don't want to study to gain new skills. Others are convinced their skills will become more valuable as the number of Cobol programmers shrinks. "If everyone goes to the PC, who's going to do the mainframes?" asks one.

But at Associated Grocers, where management tried to save the old jobs, nearly 80% of the programmers have made the switch.

"We adopted the strategy that we would try to fill 80% to 90% of our open positions with entry-level people and grow our own," says Dick Lester, vice president of information services at Associated Grocers. "You're training the new people the way you want them to develop, and the senior people know you're not hiring to replace them." —*Jean S. Bozman*

Executive Track

Edith W. Martin was named vice president of information systems and chief information officer at **Eastman Kodak Co.** She will report to Harry Kavetas, Kodak's executive vice president and chief financial officer.

Martin comes to the Rochester, N.Y., company from the Student Loan Marketing Association, also known as Sallie Mae, where she was executive vice president and chief technology officer. There she was responsible for all information technology operations, development of new business initiatives and oversight of several subsidiaries.

Some of Martin's many other IS positions include vice president and CIO at the International Telecommunications Satellite Organization, vice president at The Boeing Co. and deputy undersecretary for research and advanced technology at the U.S. Department of Defense.

Victor Davis was named vice president of systems development at **Reddi Brake Supply Corp.** Davis has worked for the Ventura, Calif., company since 1985, most recently as vice president of purchasing. In the newly created position, he will be responsible for developing and implementing a new information system.

Reddi Brake distributes brake systems, chassis components and other auto undercarriage parts to professional installers in 30 states.

Karen Kreider was named vice president of information technology at **Rexall Sundown, Inc.**, a Boca Raton, Fla.-based provider of health products.

Kreider was most recently director of business solutions at Burger King Corp., where she was responsible for the fast food company's worldwide IS. She has also worked as a senior staff consultant at Andersen Consulting in Cincinnati and Miami. Kreider will report to Dean DeSantis, Rexall Sundown's senior vice president of operations.

F.Y.I, *page 80*

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So I sat here thinkin', if things were different, and I was one of those stressed-out computer executives, I'd say to myself, here's a chance to make my mark, just like I coulda' done almost a lifetime ago.

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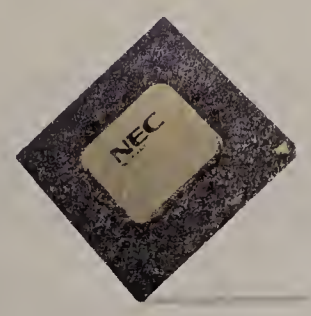

NEC

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The right stuff

Want a job leading an IS department? Do a stint as a consultant.

By Brian McWilliams

It may seem like a circuitous route to becoming a chief information officer, but spending a half-dozen years at a top-notch management consulting firm is a powerful career enhancer.

"Consulting is preferred background in at least half of the CIO searches we do," says Beverly Lieberman, president of Halbrecht Lieberman Associates, an executive search firm in Stamford, Conn.

Why do chief executives look so favorably on information systems leaders with consulting experience? CEOs like the personalities and communication skills consultants possess. But more importantly, consultants are masters of alignment, according to Paul McCartney, managing director at the high-technology practice of Korn/Ferry International in Dallas. "To be a good CIO, you need to tie [information technology] to business strategy. Our clients believe consulting teaches you that," he says.

Standard Register's Tom Russell *learned that for a consultant, time really is money*

IS executives who have been consultants agree it's great preparation. Charlie Raeburn left a small IS shop in 1974 to work at Deloitte & Touche. The seven-year stint exposed him to a range of technologies, industries, cultures and ideas. "Even if you hopped from one IS job to another, you'd have a hard time duplicating that," Raeburn says. Today he is vice president of retail information systems at John Hancock Mutual Life Insurance Co. in Boston.

Consulting also teaches practical skills, such as time management. IS-professionals-turned-consultants can't afford many bad-hair days. "Once you start billing clients at $300 an hour, you quickly realize every hour is accountable," says Tom Russell, CIO at The Standard Register Co. in Dayton, Ohio.

Susan K. Behnke, *CIO at Delta Dental, may eventually consult again*

Russell left a bank's IS group and spent 12 years at Ernst & Young and then worked at CSC Index. Russell is trying to inculcate the consultant's approach to time in his staff. "It's a different mind-set," he says. "Instead of seeing each hour you spend on a project as cost, you see it as an opportunity to add value."

Another thing consulting bestows on IS professionals is experience selling ideas to top management. That's especially valuable as companies look to IS for internal consulting. "You learn how to listen, ask questions and get a shared vision with other executives," says Susan K. Behnke, CIO at Delta Dental Plans in Oakbrook, Ill. Behnke did a stint as a consultant at Price Waterhouse.

Hired guns

Of course, you don't have to leave IS to gain breadth or management acumen — or get a top IS job. Doug Ehmann, who was recently named CIO of Westinghouse Electric Corp.'s Electronic Systems Division in Baltimore, never worked at a consulting firm. After college, he opted for an IS job at Procter & Gamble Co.

"I didn't want to be a hired gun. I wanted to establish relationships within a corporation and get a chance to see changes through," Ehmann says. He says it's possible to gain broad experience in a large firm such as Procter & Gamble, where he worked for 14 years. "I had a portfolio that spanned nearly every function in the business."

Not every CEO thinks consultants walk on water. Some perceive them as theoreticians who don't know how to get things done. Others see potential conflicts of interest when CIOs have strong ties to a consulting firm. "There may be a tendency to bring in their buddies," says Jeffrey Mitchell, president of The Mitchell Group, a search firm in Hermosa Beach, Calif.

Still, consulting remains one of the best ways to boost your career in IS — assuming you can convince the Big Six or one of the leading systems integration firms to hire you, that is. Unless you are recruited right out of college, it's extremely difficult for experienced IS professionals to find work in a major consulting firm. Lieberman estimates that fewer than 5% of mid-career IS people today have what it takes to make the move.

If you do make it, brace yourself for the rigors of consulting life. Suddenly you're in a world where everyone is the best and brightest; Type A personalities abound. To meet demanding client expectations, you'll be exposed to incessant travel, stress and 16-hour days. It's exhilarating, but it can wreak havoc on your personal life. Russell blames his divorce on the consulting lifestyle: "When I did get home on weekends, it didn't feel like home anymore."

Many CIOs who have been there advise getting your consulting stint out of the way early in your career, when you have lots of energy and minimal family commitments. But there's also a good argument for waiting until you have some experience. Transitional stress is common when you move into consulting. "You need some past successes to draw on to get you through it," Russell says. Just don't wait too long; consulting firms generally don't like bringing in partner-level people from the outside.

Some CIOs, *such as Westinghouse's Doug Ehmann, gain a broad perspective without becoming a consultant*

If you think the consulting lifestyle is too stressful, maybe you aren't CIO material after all. Behnke, for one, travels as much now as she did during her Price Waterhouse days, and she's still putting in 10- to 16-hour days as Delta Dental's CIO. Her career plan as she approaches retirement is to get back into consulting. "Once you get consulting in your blood, it's hard to lose it," she says. ■

McWilliams is a freelance writer in Durham, N.H.

F.Y.I.

Executive Track

CONTINUED FROM PAGE 77

Stella L. Tavilla was named vice president of operations at **Intuit, Inc.**, the Menlo Park, Calif., software maker. In addition to internal IS, she will manage Intuit's sales, fulfillment, merchandising and customer support.

Tavilla joins Intuit after 10 years at Home Shopping Network, the electronic shop-at-home company in Clearwater, Fla. Most recently executive vice president and CIO, she was the chief architect of Home Shopping Network's IS strategy.

Boston Stock Exchange, Inc. has appointed **James B. Crofwell** president and chief operating officer. He will manage IS, trading-floor operations, finance and legal affairs.

Crofwell has worked at the exchange since 1974 and has been executive vice president of IS since 1986. He oversaw the development of the Boston Stock Exchange's Beacon electronic trading system.

Charlene Tamm Barnes was named senior vice president and CIO at **Mesirow Financial**, a Chicago-based provider of financial services.

Most recently, Barnes was pres-

F.Y.I., *page 82*

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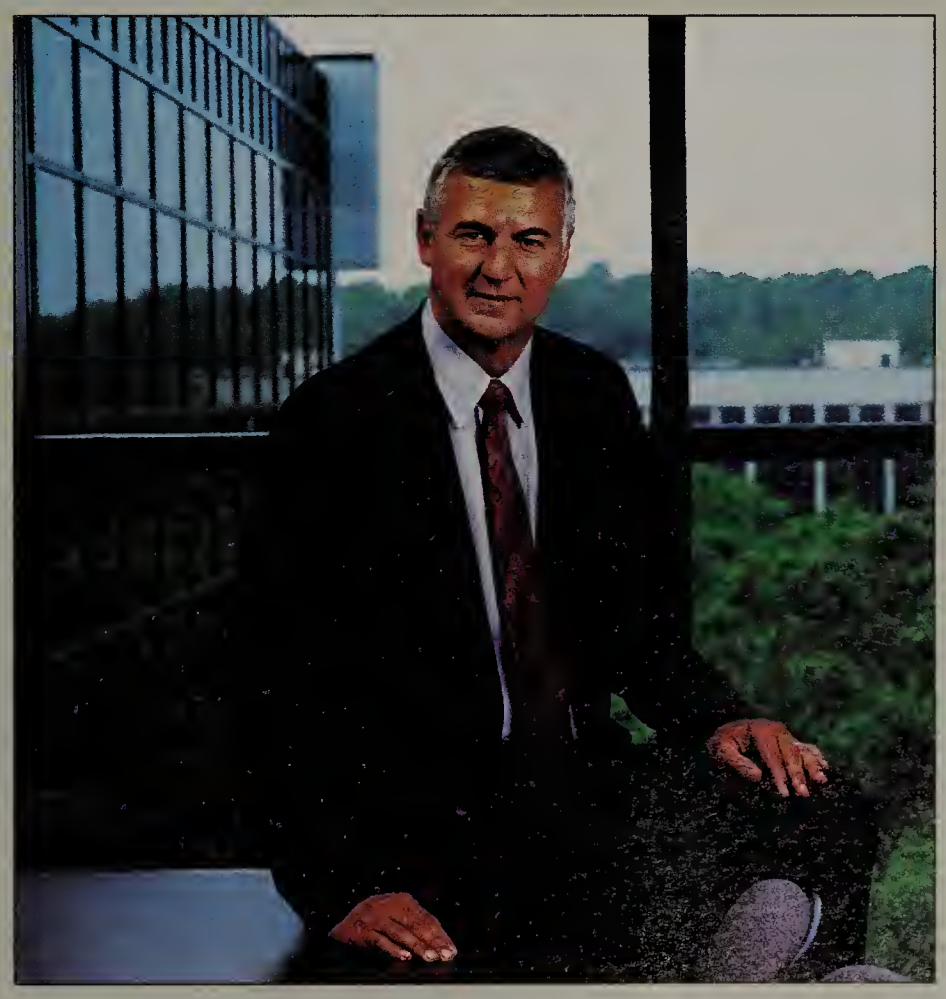

President and CEO James H. Goodnight

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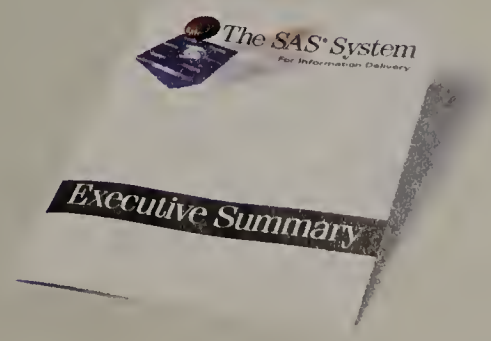

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F.Y.I.

CONTINUED FROM PAGE 80

ident and founder of Small Business Systems Software in Basking Ridge, N.J. She also has held IS management positions at Prudential Securities, Inc.'s Prudential Mutual Fund Services in New Jersey and Shearson Lehman Brothers in New York.

Arthur G. "Jerry" Cooper was named executive vice president of finance and operations at **Showtime Networks, Inc.** He will report to Matthew C. Blank, president and CEO of New York-based Showtime.

Cooper will be responsible for IS, finance, operations and corporate development. He joined cable television network Showtime in 1988 as senior vice president and CFO. Before that, he was vice president and CFO at Young Broadcasting, Inc.

Joe B. Pierce Jr. was named vice president of corporate IS at **NorAm Energy Corp.**, a Houston-based natural gas utility and energy marketer.

Pierce has worked at Arkla, a natural gas distribution division of NorAm, since 1968. He started as a computer programmer and was most recently vice president of customer service.

Ronald Edelstein was appointed CIO of **Witco Corp.**, a manufacturer of chemical and petroleum products in Greenwich, Conn.

Edelstein joined Witco's IS department in 1991 and was named a corporate vice president in 1992.

Darryl Fisher was named COO of Business Information Services at **Lexis-Nexis.** He will report to President and CEO Ira T. Siegel.

Fisher was previously CEO of Reed Technology and Information Services, which, along with Lexis-Nexis, is a division of Reed Elsevier, Inc.

He will begin at the Dayton, Ohio, provider of information services and management tools Feb. 1.

Two groups seek award nominations

The Association for Computer Operations Management, or Afcom, and the National Association of State Information Resource Executives (NASIRE) are seeking award nominations.

Afcom wants to hear about candidates for its 1996 Data Center Manager of the Year award. The award salutes technical and managerial skills.

Candidates must be directly responsible for managing a data center/computer operations department. Company size isn't a factor, and nominees need not be Afcom members.

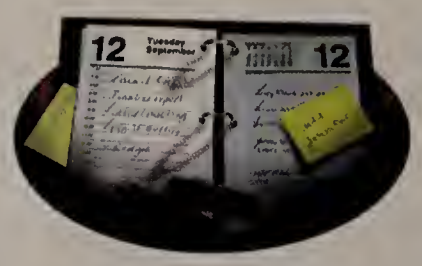
The award will be presented at Afcom's spring meeting April 14-18 in Chicago. *Computerworld* Editor Paul Gillin is a judge.

The Afcom nominations must be submitted by Feb. 16. For more information and a nomination form, call Afcom in Orange, Calif., at (714) 997-7966.

NASIRE annually honors information technology initiatives that best assist government officials in serving citizens. This year, awards will be presented in eight categories: administrative applications, client/server, innovative use of technology, intergovernmental applications, Internet use for service to citizens, networking, service applications and statewide initiatives.

Award winners will be announced in press releases and letters to their state governors.

Awards will be presented at the NASIRE annual meeting Oct. 16 in Portland, Maine. Nominations must be submitted by March 15. For more information, call NASIRE in Lexington, Ky., at (606) 231-1971.



March workshops

A list of workshops for information systems managers. Most workshops are offered later in the year in other cities. To find the time and location most convenient for you, call the contact phone number.

Information Systems Project Management. Phoenix, **March 4-6**; San Jose, Calif., **March 6-8**; Cleveland, **March 11-13**; Philadelphia, **March 13-15**; New York, **March 20-22**; Atlanta, **March 27-29** — Fee: $1,295 to $1,490. Contact: American Management Association, New York, N.Y. (800) 262-9699.

Information Management: The Next Generation. Chicago, **March 4-7**; Washington, **March 12-15** — Fee: $475 to $1,950, depending on days attended. Contact: Delphi Consulting Group, Boston, Mass. (617) 247-1025.

Systems Analysis and Design for Information and Business Professionals. Lake Buena Vista, Fla., **March 4-7**; Washington, **March 19-22** — Fee: $1,350 to $1,550. Contact: American Management Association, New York, N.Y. (800) 262-9699.

The Crossing the Chasm/Inside the Tornado Seminar Series. Boston, **March 5-6** — For project managers and those incorporating information technology in the enterprise. Fee: $1,285 to $1,395. Contact: Marketwise, Inc., Boulder, Colo. (800) 300-3846.

Effective Skills for Technical Managers. Washington, **March 5-8** — Fee: $1,495 to $1,995. Contact: The Learning Tree International, Inc., Reston, Va. (800) 843-8733.

Project Management: Skills for Success. San Francisco, **March 5-8**; Washington, **March 19-22** — Fee: $1,495 to $1,995. Contact: The Learning Tree International, Inc., Reston, Va. (800) 843-8733.

Software Project Planning and Management. San Diego, **March 5-8** — For project and line managers. Fee: $1,495 to $1,995. Contact: The Learning Tree International, Inc., Reston, Va. (800) 843-8733.

Specifying and Managing Software Requirements. Washington, **March 5-8**; San Francisco, **March 12-15** — For project managers developing requirements specifications. Fee: $1,495 to $1,995. Contact: The Learning Tree International, Inc., Reston, Va. (800) 843-8733.

Re-engineering: The Leadership Perspective. Boston, **March 6** — For senior managers involved in or considering a re-engineering effort. Fee: $1,500. Contact: Hammer and Co., Cambridge, Mass. (617) 354-5555, ext. 106.

Understanding Client/Server Computing: Planning, Designing and Implementing a Client/Server System. Chicago, **March 6-7**; Portland, Ore., **March 18-19**; Philadelphia, **March 21-22** — Fee: $895. Contact: Data Tech Institute, Clifton, N.J. (201) 478-5400.

Managing Telecommunications: Technologies Your Company Can't Do Without. San Francisco, **March 7-8** — Fee: $1,250 to $1,435. Contact: American Management Association, New York, N.Y. (800) 262-9699.

Quality Review Techniques for Information Technology Professionals. Los Angeles, **March 7-8** — Fee: $1,195 to $1,375. Contact: American Management Association, New York, N.Y. (800) 262-9699.

Re-engineering the Computer Help Desk. San Jose, Calif., **March 7-8**; Irvine, Calif., **March 14-15** — Fee: $895. Contact: Data Tech Institute, Clifton, N.J. (201) 478-5400.

Communication and Interpersonal Skills: A Seminar for Technical Professionals. Chicago, **March 11-13**; Washington, **March 11-13** — Fee: $1,195 to $1,375. Contact: American Management Association, New York, N.Y. (800) 262-9699.

Strategic IS Planning. New York, **March 11-13** — For senior managers. Fee: $1,350 to $1,550. Contact: American Management Association, New York, N.Y. (800) 262-9699.

Implementing Major Change: The Human Dimension of Re-engineering. Cambridge, Mass., **March 14-15** — Fee: $1,900. Contact: Hammer and Co., Cambridge, Mass. (617) 354-5555, ext. 106.

Workflow: Joining the Islands of Automation. Washington, **March 18-19** — Fee: $1,095 to $1,295. Contact: Delphi Consulting Group, Boston, Mass. (617) 247-1025.

Improving Your Internal Consulting Skills: For IS Professionals. Orlando, Fla., **March 18-20** — Fee: $1,295 to $1,490. Contact: American Management Association, New York, N.Y. (800) 262-9699.

Calendar announcements should be submitted at least six weeks prior to the event and include the title of the event, dates, location, theme or focus, keynote or major speakers, principal topics and a contact person, organization and phone number.

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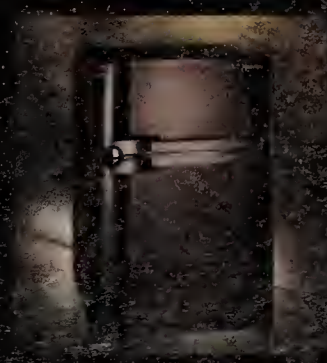

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WEEK 2 OF 19

COMPUTERWORLD's

TechnoTrivia

Welcome to COMPUTERWORLD's TechnoTrivia

It's fun – and easy to play each week!

1. Look for the COMPUTERWORLD TechnoTrivia icon throughout this issue) to the TechnoTrivia questions listed on this page.
2. Enter via COMPUTERWORLD's Web site on the Internet: **http://www.computerworld.com**
3. On the Web site Entry Form, identify the page number in this week's issue of COMPUTERWORLD where the correct answer to each TechnoTrivia question appears.
4. Or you may enter by fax using the Fax Entry Form below.

Put your RAM to the test!

This Week's Questions:

1. What was the original in-house name for the IBM PC Junior?
2. In the CD-ROM game MYST, what type of musical instrument is located in the rocket ship?
3. What programming law states: "Adding manpower to a late software project makes it later?"
4. What was the precursor to MIT's Media Lab?
5. What was the first rock group to go on-line on the Internet?

Trivia questions and answers provided and/or verified by Christopher Morgan and The Computer Museum.

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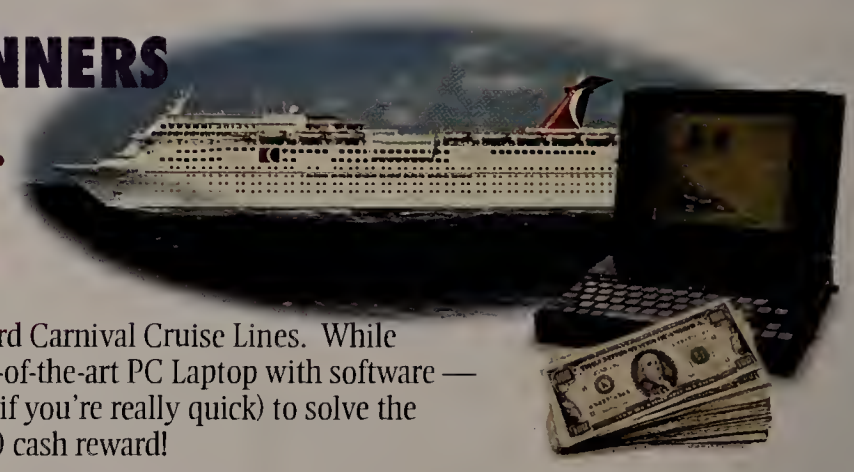

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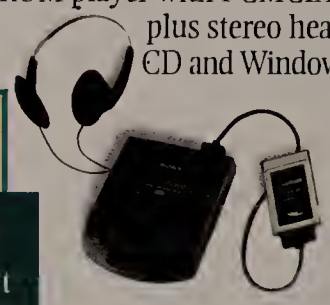

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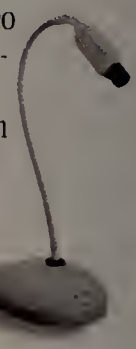

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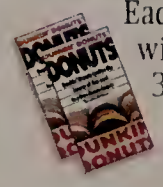

Each Tuesday five winners and their associates (up to 20 people) will receive Dunkin' Donuts gift certificates (or alternative) for 3 dozen donuts, a Dunkin'Donuts coffee thermos, a pound of ground coffee plus an engraved TechnoTrivia plaque.

FAX ENTRY FORM FOR WEEK 2

Question #	Correct Answer on Page #
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2.	
3.	
4.	
5.	

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Buyer's Guide: Network Management

The future *isn't* now

FRED OTNES/SIS

After years of development, comprehensive network management is still just out of reach

Users want it all, and vendors promise it all. It's too bad that they're often on opposite ends of the spectrum when it comes to **network management**. Options abound, but users seem concerned about what isn't yet available on traditional network management platforms and suites.

Our lead article, starting on page 88, looks at network management from a core functions standpoint. We consider seven functions, ranging from integration to reconfiguration, that users and analysts agree they need most to perform effective network management. The bottom line in terms of products out there? They address these core functions but not as well as users wish. Users are asking for a lot, and none of the products are hitting the absolute target — although some are closer than others.

Johnson

Dryden

Next, analyst **Bob Johnson** from Dataquest, Inc. and *Computerworld*'s **Patrick Dryden** approach network management from different angles: One looks at the future, and the other probes the current state of confusion in the merging of products. See pages 92 and 93.

Additionally, you will find a sampling of the leading **network management vendors** and their products on page 92, with commentary on their standing in the market by Arnie Tomaino from Dataquest.

Finally, *Computerworld*'s **Buyer's Satisfaction Scorecard** survey brought out solid customer ratings and concerns about internetworking hardware compatibility in enterprise network management products from IBM, Hewlett-Packard Co., SunSoft, Inc. and Cabletron Systems, Inc. See page 96.

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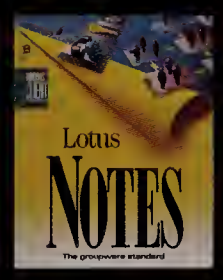

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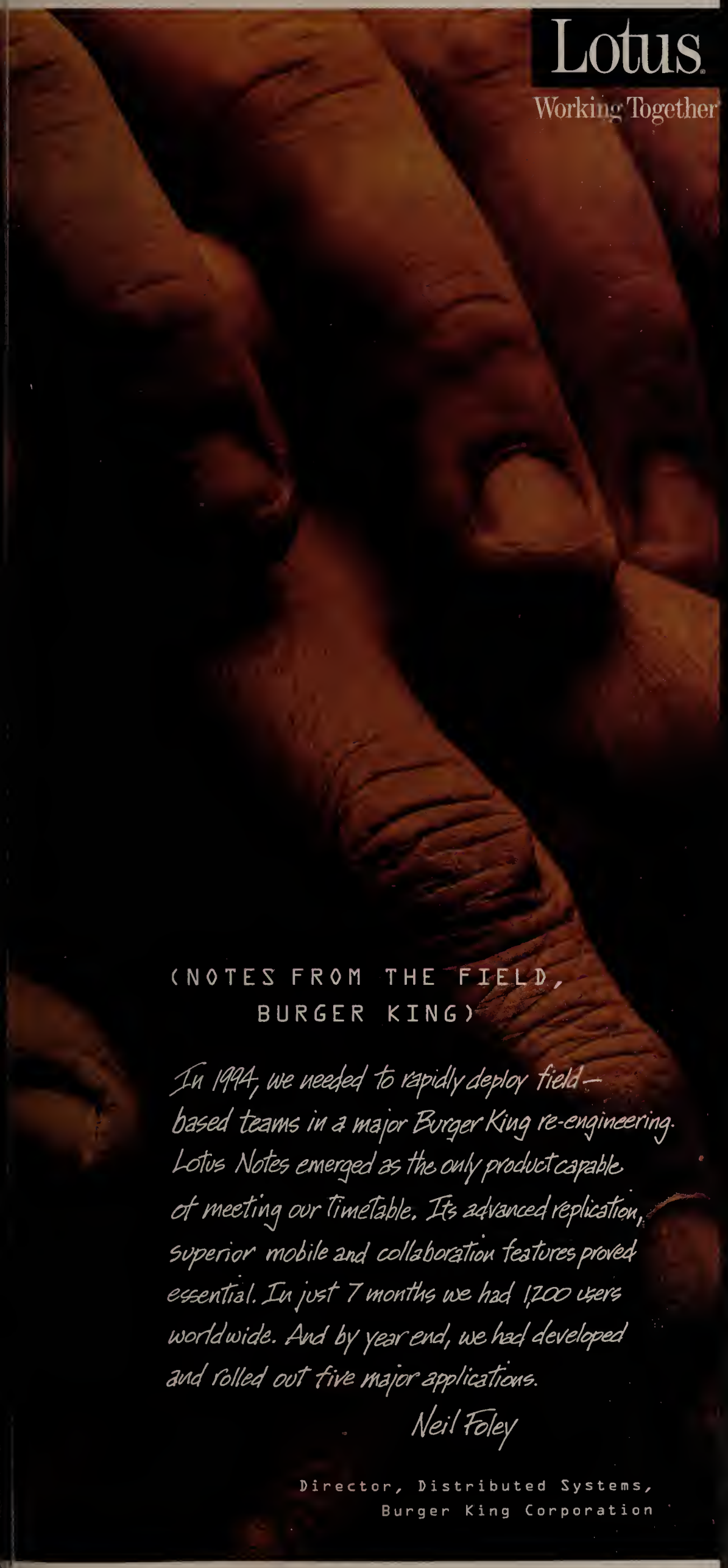

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Neil Foley

Director, Distributed Systems,
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Network manage to snuff

Despite vendor promises of comprehensive, efficient network management tools, users and analysts are frustrated because today's offerings are unwieldy and incomplete: There are solid core functions that the products just aren't addressing well enough to perform adequate network management.

Here's a look at those functions, along with some firsthand user experience.

By Avery Jenkins

1. Integration

The most important function, from many users' perspectives, is integration that lets network hardware provide information to the network management software.

The net result of employing greater integration is clear. More coordination by the system means less manual labor and fewer chances of leaving gaps in network performance.

David Brennan, director of MIS at Premier Dental Products in Norristown, Pa., was able to achieve this level of integration only by single-sourcing his network hardware and software using Hewlett-Packard's OpenView and HP hubs and routers.

"The integration of the software product with the hardware is superlative in terms of being able to manage and reconfigure users and routers," he says.

For the sort of integration where the user doesn't have to "grab this data and that data from different products" and then combine it on their own, the most logical path to follow is the one Brennan chose — single-vendor purchasing of hardware and software.

"You can get a very expensive solution that's tightly integrated," says Jill Huntington-Lee, a senior analyst at research firm Datapro Information Services Group in Delran, N.J. But "is there one off-the-shelf [product] now that can integrate network management data?" she asks.

Her answer is no. "It's technically impossible" because despite the early attempts to develop common messaging schemes, common objects and common databases, most vendors continue to use proprietary methods of accessing and manipulating the data.

The only way to put an integrated system together is with a lot of elbow grease and a willingness to spend some money developing a custom data access and storage system that will be compatible with multiple tools and the network management system's architecture.

2. Mobility

"We live in such a mobile society today," says Gary Smith, director of MIS at Shasta Industries, a swimming pool manufacturer in Phoenix. "I have to manage the network from anywhere."

Chet Geschickter, an analyst at Hurwitz Consulting Group, Inc. in Newton, Mass., dubs this feature "distributed console capability." He says the network systems vendors could learn a few things about it from systems management products such as Tivoli Systems, Inc.'s Tivoli Management Environment, which offers this capability to systems managers.

On the network management side, it's technically possible, Geschickter says. But even though "it makes a lot of sense, it hasn't been done yet."

Huntington-Lee disagrees. Many vendors provide this capability, she says, but with a catch.

"Most provide it through [the X Window System], which you don't want to deal with because you are sending bit-map graphics over the network," she says.

The few that provide distributed consoles without imposing heavy bandwidth penalties include IBM's NetView for AIX and Cabletron's Spectrum management products, she says.

3. Statistics

Statistics are key to a network manager's decisions. Without them, a manager is flying at night without any instruments. But there are some problems with current statistics-gathering tools.

"I want to be able to monitor server utilization and network traffic utilization," says David Morrow, network manager at Acordia, Lloyd, Facciani Insurance, an insurance administrator in Fresno, Calif.

The trouble with some current products, Morrow says, is that they increase the drain on the systems they are monitoring.

Integration plays a role here, too, Geschickter says. While there are many tools for gathering information, "it's very fragmented," he says. Today, getting the information you need "should not become a lifelong endeavor," but for the most part, it is.

4. Expert systems

The addition of expert systems, which would analyze statistics for troublesome trends and notify the network manager before disks fill up, servers seize or packets start having a demolition derby, would be a welcome addition to their tool set, users say.

"We just have a big environment, and we are spread over a large area," says Kevin Goolsby, LAN administrator at Farmland Foods, a multinational agricultural products distribu-

ment tools not up – *yet*

tor in Kansas City, Mo.

Having an expert system to warn managers of potential trouble would help reduce downtime and labor costs. "It would save a lot of travel time because a lot of our sites are in remote areas," Goolsby says.

The problem is, these systems are a lot of trouble to put together. "The best expert systems are more general-purpose expert system shells that have been customized and integrated into the network management environment," Huntington-Lee says.

Outside of the true expert systems, she cites products such as Spectrum, which has a "pretty nice alarm and filtering system." These capabilities, also known as event correlators, also can be found on OpenView, NetView and SunSoft's SunNet Manager.

5. Security

Maintaining security over the network management system and the corporate network is still a major concern for network managers.

The ability to monitor log-in attempts and other common security measures are frequently provided by basic network management systems. But they aren't always used, according to users.

"We don't really look at ours," Goolsby says.

Vendors aren't yet providing strong security features, says Brian Urba, a research analyst at International Data Corp. in Framingham, Mass. He says this is because the client/server and network-based applications aren't up to the task.

Right now, "it's more psychological than anything," Urba says. "Distributed control and reliability have to come before security."

"That is where the feature gap is very high," says Arnie Tomaino, senior industry analyst at Dataquest in Westboro, Mass. While Dataquest's studies show that a lot of users want greater security features, "no one has gotten their hands around the whole issue."

Computer Associates International, Inc.'s CA-Unicenter was singled out by Dataquest principal analyst Bob Johnson and Huntington-Lee as having better security than most management systems.

Among the LAN-based management systems, McAfee Associates, Inc.'s BrightWorks appears to have the best virus-detection schemes, Huntington-Lee says.

6. Fault isolation

Fault isolation is the ability to quickly isolate a problem. In network troubleshooting, just finding the problem is the halfway mark to fixing it. While your statistical system can tell you that the number of packets on a segment has skyrocketed, it won't necessarily tell you where they are coming from.

That is why people such as Nathan Zuercher, a LAN specialist at MagneTek, Inc. in New Berlin, Wis., use products such as Novell, Inc.'s LANalyzer and Richard Mannix, director of network services at Fuller Co. in Bethlehem, Pa., uses Network General Corp.'s Sniffer.

As networks grow in size and complexity, the ability to isolate problems is getting more crucial, Zuercher says. "That is going to be very important down the road."

On the other hand, Huntington-Lee says products such as LANalyzer "help only if you have time on your hands." Instead, she says NetView and Spectrum offer the best fault isolation by themselves. But OpenView may have a particular strength in this area because vendors such as Maxm Systems Corp. and Boole & Babbage, Inc. have made their systems NetView-compatible, which is a component of HP's OpenView systems management tool.

But Tomaino says there is little difference among the products when it comes to this core capability.

"I think they all do it well. If you can't handle fault management, you shouldn't be in the business," he says.

7. Reconfiguration

While most of the previous capabilities primarily have dealt with seeing, finding and predicting network problems, the ability to reconfigure on the fly often represents the pinnacle of network management.

With nodes, routers and hubs spread across the network, reconfiguring can become quite a chore — unless it can be done remotely, graphically and simply.

"Things in my environment happen very quickly," Morrow says. "I don't get a lot of notification when I have to add a lot of people or move people around."

Morrow says he wants to be able to add, subtract, reconfigure and rebalance with as little hair-tearing as possible.

Spectrum may come the closest to the ideal because it can provide intuitive reconfiguration capabilities, Geschickter says.

Most reconfiguration capabilities are provided by switch management applications, and "those applications are rather immature at this point," Geschickter says.

Like most other users, Morrow has borrowed some functionality from various systems. Nothing, he says, has all of the features he needs.

"You have to buy a ton of products to address one goal," he says. Echoing many others, Morrow says he hopes to see some positive changes in the coming year. ■

Jenkins is a freelance writer in Kent, Conn.

Glossary

Network management — A set of procedures, software and operations designed to keep a network operating near maximum efficiency.

Configuration management — The process of obtaining information from network devices and using it to manage their setups.

Network topology — The physical arrangement of network devices and media within a data network.

Distributed Management Environment — A framework for distributed management proposed by the Open Software Foundation.

Distributed Computing Environment — A framework for distributed computing proposed by the Open Software Foundation.

Remote network monitoring (Rmon) probe — A device that was designed to help perform network management on a network segment.

Sources: *Newton's Telecom Dictionary*, 1995, Harry Newton; *Network Managment. A Practical Perspective*, 1996, Addison-Wesley Publishing Co.

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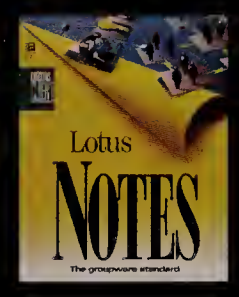

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Sneak Peek

Watch for Win 95, fault management tools

Here are a few predictions on what to expect in the network management market, according to **Bob Johnson**, principal analyst at Dataquest.

On the upside:

- The hottest area of network management interest will be new tools and add-ons that round out Windows 95 network capabilities. The focus will be on software distribution, backup support, the creation of audit trails, remote control and audit/asset management. Many publishers of help desk software will continue to race Novell, Inc. and Microsoft Corp. to try to fill the asset management void.
- Fault management tools will continue to expand beyond simply mapping devices in pretty colors. They will have embedded intelligence, which will improve their ability to predict bottlenecks and performance issues. As a result, network administrators will be better able to time the wave of network demand.
- Managing mobile users will become less archaic through innovative technology such as Novell's Mobile NetWare and Microsoft's Dial-up Networking. Mobile product vendors will pay more attention to compatibility and reliability as hardware advances make performance less of a primary focus.
- Configuration management tools will see a marked improvement, but there will be more focus on integration of network management, systems management, asset management and help desk management software. Tools will be less and less like islands and more widely integrated into a service center solution.
- Client/server network management tools will begin to break through the existing resource drain that client/server environments present. Tool advances will be especially pronounced in backup software as those tools become more adept at handling data management processes in highly distributed environments.
- Asset management tools will continue to roll out on a daily basis. The key question that network administrators must ask themselves this year is, when it comes to knowing who has what, where and when, do they really want to know? Many network administrators say they are too busy to get a handle on their hardware and software inventories. But continuing to use that excuse will leave those administrators less able to meet the needs of the organizations they serve as all types of environments face faster change and increased fragmentation.

On the downside:

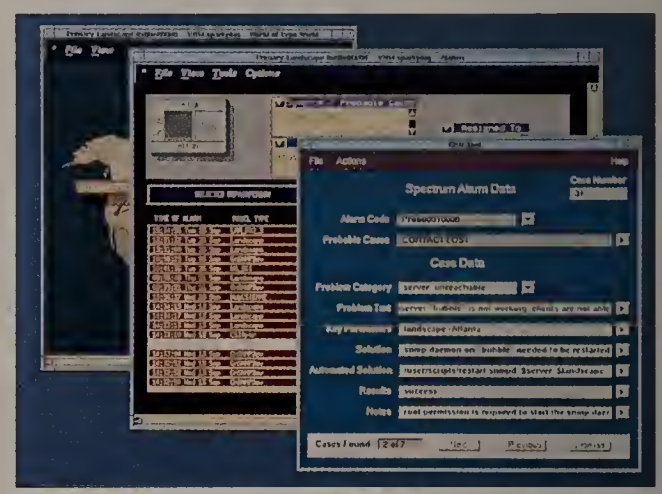
- For network administrators, the idea of standards still is just an idea. Be prepared for continued consternation over incompatibility. Work to minimize your exposure to new technologies outside the mainstream. They sound too good to be true and probably are.
- The reality of network management this year will be a nightmare come true. Instead of maintaining a stable personal operating system, network administrators will try to balance multiple operating systems. This will be a year of transition and frustration as the move to Windows 95 picks up steam and many organizations balance that with continued use of Windows 3.1 and OS/2.
- Security management tools will continue to increase in viability. But for every new option, there will be an army of skeptics who will try to demonstrate how insecure a secure environment can be. The result will be continued discomfort on the part of network administrators when they are asked to use the Internet for business transactions that require security. Access control and overall security will remain a murky mess. Watch for adequate safeguards to remain unattainable. Industrial-strength security will remain a property of controlled, protected environments, not PCs or Internet-connected systems.
- Network, systems, applications and database companies will continue to edge toward one another to offer a more cohesive view of the network and its components. But many of those arrangements will be at arm's length or slow to mature. Expect pockets of integration for better enterprise management capabilities, but realize that many technology vendors will continue to focus their energy on their own targets of opportunity.
- Software metering will be slow to gain acceptance. It actually requires network administrators to understand what their users do with the products on the network. Most administrators haven't a clue and really aren't interested in learning that part of the trade. They're too busy keeping the network running and expanding simultaneously in multiple directions. The initial driver of metering will come from divisions that are interested in billing back departments and tracking usage of specific products in projects.

The network manager's role continues to expand

- Performance/Configuration management
- Auditing
- Tracking mobile users
- Software metering
- Software distribution/License management
- Remote control
- Backup/Asset management
- Security

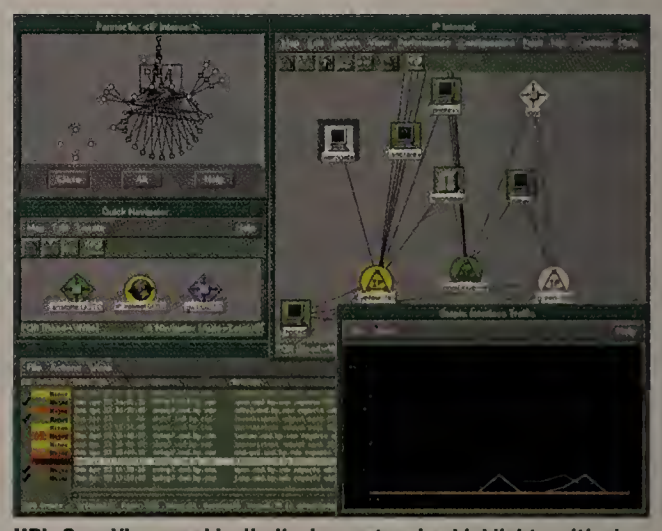
Enterprise-level management tools

With commentary by Arnie Tomaino, a senior analyst at Dataquest, Inc. in Westboro, Mass.



Cabletron's Spectrum helps managers keep up with the status of the network and monitors for trouble spots

Spectrum
Cabletron Systems, Inc.
Rochester, N.H.
(800) 332-9401
http://www.ctron.com
Vendor is well-respected; product is considered further along than Hewlett-Packard's OpenView. Can send reports on network utilization to World Wide Web servers. Product is a useful tool that updates managers about the status of the network. Web reporting could change the wide-area network manager's view and could handle network data.



HP's OpenView graphically displays networks, highlights critical problem areas and monitors interface traffic

OpenView
Hewlett-Packard Co.
Palo Alto, Calif.
(800) 752-0900
http://www.hp.com
Very well-known and marketed but not sufficiently scalable. Product can't handle enterprise management loads.

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- 23. Dir./Mgr. Sys. Development, Sys. Architecture
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3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

Operating Systems

(a) Solaris	(e) Mac OS
(b) Netware	(f) Windows NT
(c) OS/2	(g) Windows
(d) Unix	(h) NeXTstep

App. Development Products ❑ Yes ❑ No

Networking Products ❑ Yes ❑ No

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SunNet Manager
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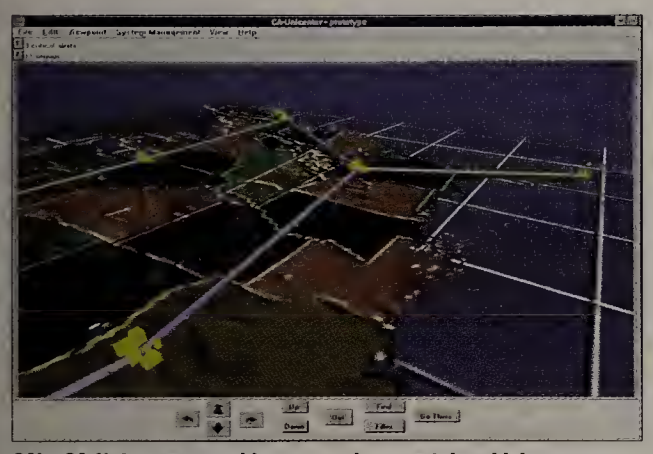

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http:www.cai.com
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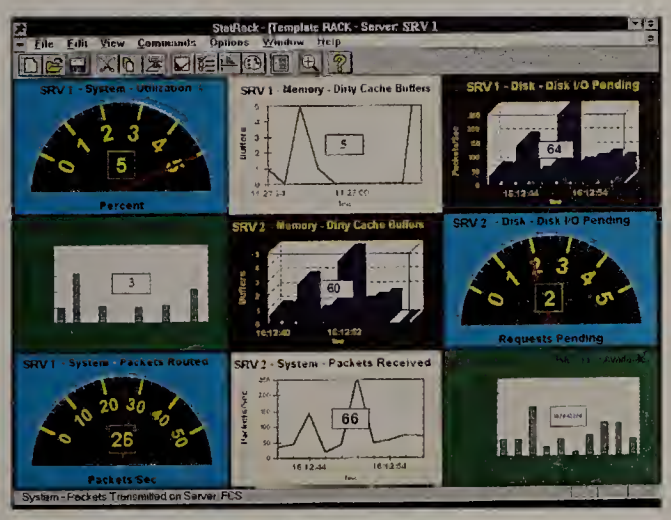
Monitrix for NetWare 3.0
Cheyenne Software, Inc.
Roslyn Heights, N.Y.
(516) 484-5110
http://www.chey.com
Allied with CA. Not as well-known as HP, IBM or Sun, but this package has solid network management features and a well-integrated interface. And this tried-and-true network utility vendor provides it all at a bargain-basement price.

LANDesk Management Suite 2.0 and LANDesk Workgroup Manager
Intel Corp.
Hillsboro, Ore.
(800) 538-3373
http://www.intel.com
Strong integration with Novell's NetWare Management System (NMS) and Bay Networks, Inc.'s Optivity for NMS. Can control and observe PCs, servers, routers, printers, virus scans, network traffic and product backup.

BrightWorks 2.1
McAfee Associates, Inc.
Santa Clara, Calif.
(800) 332-9966
http://www.mcafee.com
Good suite of network management utilities but lacks some key features such as traffic or server monitoring. Inventory, application metering and virus prevention are strong.

Saber LAN Workstation 5.5
McAfee Associates
(Saber Software was acquired by McAfee late last year)
Santa Clara, Calif.
(800) 866-6585
http://www.mcafee.com
Good suite that is getting better. Powerful LAN management suite includes new drag-and-drop capabilities and Novell's NetWare 4.x NetWare Directory Services.

Norton Network Series
Symantec Corp.
Cupertino, Calif.
(800) 441-7234
http://www.symantec.com
Includes Norton Administrator for Networks 2.0, Norton Desktop Administrator 1.0, Norton Antivirus 3.0 and PCAnywhere for Windows, Windows 95 and Windows NT. The product provides hardware and software inventory, software distribution, application metering, reporting and scripting. Lacks statistics and server monitoring.



Seagate's Frye Utilities tout a network statistics monitoring function

The Frye Utilities for Networks
Seagate Enterprise Management Software, Inc.
(formerly Frye Computer Systems, Inc.)
Boston
(800) 234-3793
http://www.sems.com (will be on-line in early March)
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Commentary

Patrick Dryden

Smoothing the edges

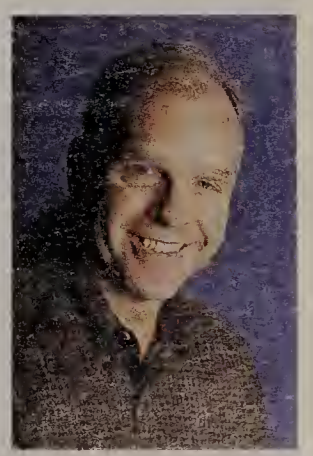
In former lives, I've developed, supported and promoted LAN products and then reported about them. Hey, networking can be fun. But over time, it certainly has become more complicated.

It took a visit to NASA outside of Houston for me to realize the immense challenge of managing a far-flung network of mainframe and client/server systems.

This epiphany came several years ago, while I was seated before a whiteboard in the network administrator's office at the space center. The administrator diagrammed the complex environment that had evolved after the Apollo days.

Like an ecological system, everything was connected to everything else. One change or failure could have dire effects on the network. Separate experts monitored specific elements, and there was no single vantage point to coordinate alerts and evaluate overall performance. There was no easy-to-see picture of resources and their performance and impact on one another.

Thankfully, and to keep some of the fun intact, new tools for managing diverse systems and networks have merged in many ways to help overwhelmed administrators. First on many administrators' list of demands is integrated, aware software that tracks the overall process of information delivery to users and doesn't just discover broken elements. The data resources manager for a pharmaceutical developer who relies on such tools described it this way: "We have enough stethoscopes. Now we need a physician."



But the task is so large that one physician can't be both general practitioner and specialist. So alliances and joint development have been deployed. The big names in systems management have made sure their tools for monitoring servers and databases, distributing software and handling trouble tickets work with the leading platforms for network management. Companies such as Computer Associates, BMC Software and Tivoli Systems have become allies with Cabletron, Hewlett-Packard and SunSoft so that console operators can at least launch diverse monitoring tools.

One hotbed of management activity involves products that extend the remote monitoring capabilities of LAN probes. Smarter software can examine application traffic as it flows between clients and servers.

The future is clearer than that NASA whiteboard. A comprehensive view of a network simplifies the task of determining which elements adversely affect applications' performance.

Dryden is *Computerworld*'s senior editor, network management.

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"The most complete Internet strategy for corporations I have heard so far is Lotus'. That's for the simple reason that Lotus has the best product to marry the Internet -- Notes."

John Dodge

PC WEEK DEC. 18, 1995

Hardware fit tops wish list

Users go for platforms that recognize their internetworking equipment

By Kevin Burden

What we did... Our goal was to find out what factors led users to their chosen network management package and how well it performs. *Computerworld* contracted First Market Research Corp. in Austin, Texas, to interview users.

Charted are satisfaction ratings for influences cited by at least a handful of users. The charts represent the number of users who rated the particular function as very important and rated the package either "Good" or "Very Good." A few users gave an "Average" grade, and an insignificant number gave "Poor" grades. Overall satisfaction is the percent of total users who said their overall satisfaction is either "Good" or "Very Good."

OpenView
Hewlett-Packard Co.
Palo Alto, Calif. (800) 752-0900
94 users surveyed
Overall satisfaction
84%

Important categories	Very good	Good
Priorities common to all users		
Usability/user interface	3	9
Reliability	10	3
OpenView users' priorities		
Compatibility with network operating system	3	14
Compliance with standards	8	4

Hewlett-Packard's OpenView

Users of Hewlett-Packard's OpenView were the most satisfied group we surveyed based on their "overall satisfaction" scores. In last year's survey, OpenView was second behind Cabletron's Spectrum. The difference? OpenView Version 4.0.

Our survey was designed to reach users of OpenView's Windows and Unix versions. However, results were merged when opinions proved very similar throughout.

The new OpenView is a more open, standards-compliant package, which users say is a top reason they chose it. Adding Oracle to its data storage options is one way OpenView is opening up.

The most noticeable usability improvement is OpenView 4.0's customizable tool bar and discovery feature, which lets users choose the devices to be managed. Previously, the entire network was discovered by default.

Stability is OpenView's strongest suit. Ten users gave "very good" reliability ratings.

IBM's NetView

Only IBM's NetView users listed compatibility with systems management software among their critical decision factors. Well, IBM knows exactly what its users want because it bundled NetView 4.0 into an integrated network and systems management package called SystemView. IBM not only fulfilled a user want, but it also meshed the two functions so well that four out of five users gave compatibility "Very Good" grades.

Compatibility with internetworking hardware also was a top priority for NetView users — as it was for all but HP users in this survey. Compatibility is good, according to IBM users, but it can be better. Only one user awarded a "Very Good" grade.

Usability isn't NetView's strength. Only two of the 30 users surveyed gave favorable grades of "Good" or "Very Good"; the rest said "Average." "It's very complex; we needed a lot of training," says Don Harrison, network manager at International Paper Co. in Memphis. He said just choosing the right management software from all of IBM's offerings was overwhelming.

NetView
IBM
Armonk, N.Y. (800) 426-3333
30 users surveyed
Overall satisfaction
77%

Important categories	Very good	Good
Priorities common to all users		
Usability/user interface	1	1
Reliability	2	2
NetView users' priorities		
Compatibility with internetworking hardware	1	4
Compatibility with systems management	4	1

SunNet Manager
SunSoft, Inc.
Mountain View, Calif.
(800) 786-7638
38 users surveyed
Overall satisfaction
74%

Important categories	Very good	Good
Priorities common to all users		
Usability/user interface	4	3
Reliability	5	5
SunNet Manager users' priorities		
Compatibility with internetworking hardware	4	3
Compatibility with network operating system	3	5

SunSoft's SunNet Manager

SunSoft's SunNet Manager works in a Sun-centric world. That is, it runs on Sun Microsystems workstations, requires Sun OS or Solaris and uses pictures to display only Sun equipment in its interface, says Jeffrey Carter, a software programmer at Thrift Drug, Inc. in Pittsburgh. SunNet Manager will discover non-Sun equipment, but it doesn't display it graphically.

Internetworking is where Sun's broad third-party support helps out, and users say Sun's internetworking compatibility is one of their chief reasons for choosing Sun.

Sun scored very well in another user priority: network operating system compatibility. This is mostly because SunNet Manager was developed for Sun's own operating systems.

Both usability and reliability scored very well. None of the users complained about SunNet Manager's stability or complexity. However, 13 of the 38 users surveyed said they wouldn't choose (8) or didn't know if they would choose (5) SunNet Manager again. That potential turnover rate is the highest among the four vendors.

Cabletron's Spectrum

Cabletron's Spectrum Enterprise Manager 4.0 lures users with several unique features. It uses artificial intelligence to help solve problems by learning from past experiences, and it's based on a true client/server architecture, which some users ranked as a primary reason for buying Spectrum.

Because Cabletron also manufactures internetworking equipment, compatibility is a nonissue for many users. "It just made sense to go with the product from the vendor that makes our devices," says Dan Paton, communications manager at William Beaumont Hospital in Royal Oak, Mich. Spectrum users gave the most favorable grades for internetworking compatibility.

Fourteen users gave Spectrum's user interface favorable grades, the most any product received. Part of the reason is its distributed architecture, which allows unlimited graphical user interfaces to access the database. ■

Burden is *Computerworld*'s senior researcher, Firing Line/Scorecard.

Spectrum
Cabletron Systems, Inc.
Rochester, N.H. (800) 332-9401
45 users surveyed
Overall satisfaction
71%

Important categories	Very good	Good
Priorities common to all users		
Usability/user interface	5	9
Reliability	5	3
Spectrum users' priorities		
Compatibility with internetworking hardware	5	4
Compatibility with client/server hardware	2	1

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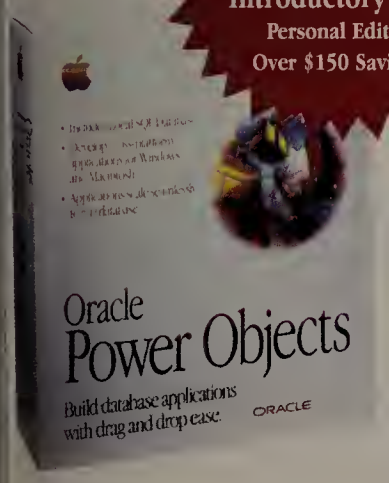

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Native Oracle 7 & SQL Server interfaces	Yes*	No
True object-oriented code reusability	Yes	No
OCX and OLE 2 support	Yes	Yes
Multiplatform: Windows, Macintosh, OS/2**	Yes	No

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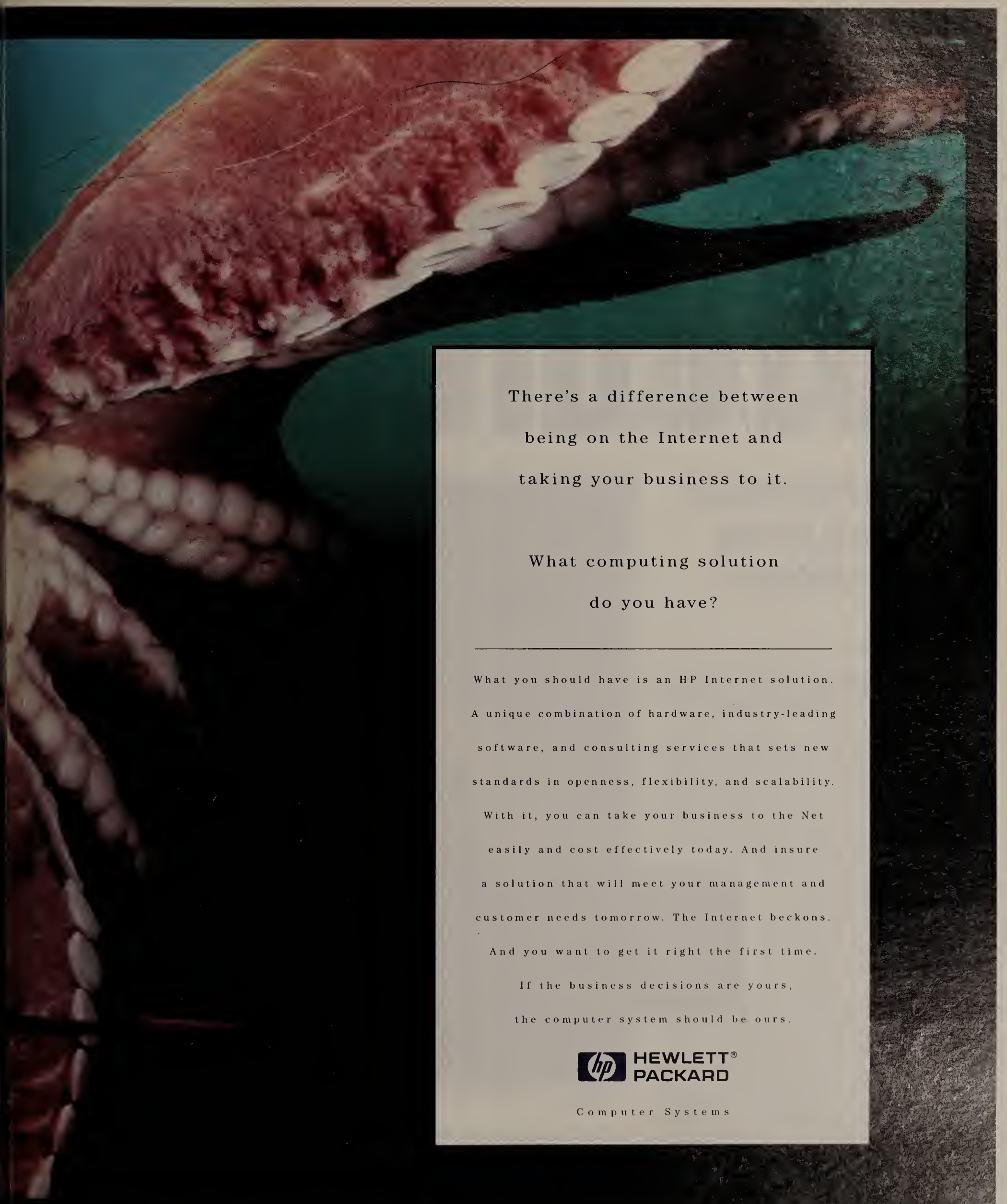

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AT ISSUE:

SAP AG is an overwhelming leader in the client/server applications sector. Supporters of its R/3 product tout its integration and scalability, but detractors say R/3 modules take much longer and are more expensive to implement than SAP admits. With whom do you agree?

SAP R/3: dream or

SAP positions you for the future

By Jeff Coomer

Get ready, cynics: SAP AG's R/3 is even better than a dream — it's a reality that you can look forward to waking up to.

The competition likes to dismiss the acceptance of R/3 as herd mentality, but a lot of high-profile companies have bet on the system for good reasons. Black & Decker Corp. became interested in R/3 in 1993 to replace our aging order-fulfillment system. Since then, we've expanded our commitment to include the financial modules, and we are evaluating the manufacturing and forecasting modules.

Like most consumer-goods manufacturers, Black & Decker faces the challenge to efficiently produce and deliver products to an increasingly demanding customer base. R/3's tightly integrated functionality lets us manage the many processes that make up our supply chain — forecasting, deploying inventory and taking and shipping orders, for instance — as a continuous business process rather than as a series of disconnected hand-offs.

R/3 also has the functional depth to be attractive to companies that are interested in gaining a competitive advantage through highly individualized business practices. This is particularly true in the area of order fulfillment, which is critical to achieving a key Black & Decker business objective — customer satisfaction.

From a technical perspective, there simply aren't that many chinks in the R/3 armor. No, the graphical user interface isn't fully Windows-compliant. And yes, the development language (ABAP/4) looks a little too much like Cobol, but so what? The architecture has three tiers and is easily scalable. The system comes with integrated performance monitoring and change-management tools, and an active data dictionary sits underneath it all.

And if you're worried about getting good technical support from your hardware vendor, it helps to know that the major players, including IBM, Hewlett-Packard Co. and Digital Equipment Corp., are implementing R/3 as their internal enterprise system.

Criticism that SAP is an arrogant company and difficult to do business with strikes me as a display of American arrogance. The rigid sales and marketing practices the German company displayed a few years ago (SAP practically refused to sell R/3 to Black & Decker in 1993 because of concerns about the multivendor approach we

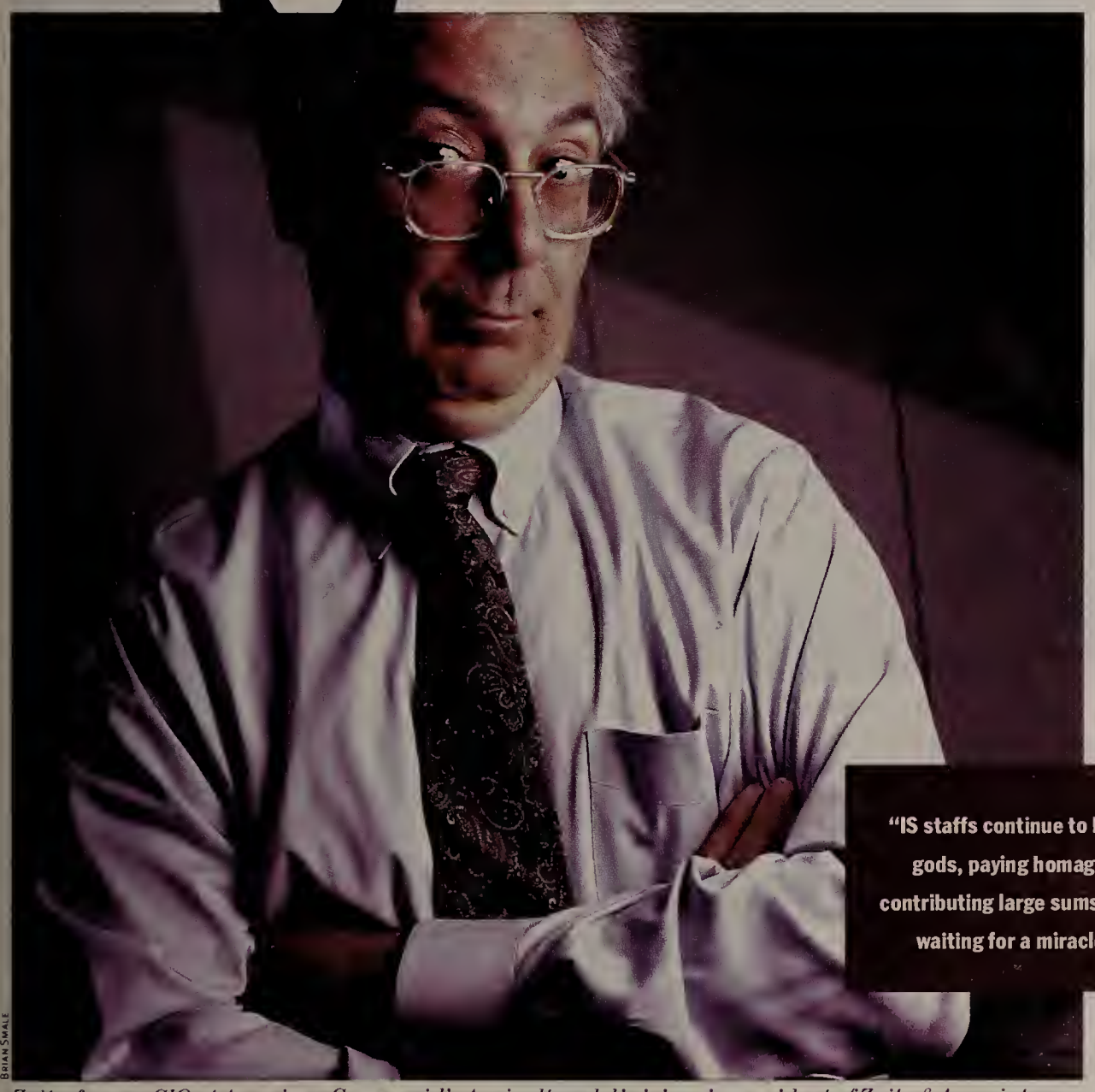
Dream, *page 102*

"The claim that R/3 is difficult to implement has less to do with the software than with the challenge to think outside the silos most of us have spent our careers automating."

WALTER CALAHAN

Coomer is director of information systems at the North American Power Tools division of Black & Decker Corp. in Towson, Md.

nightmare?



BRIAN SMALE

Zeitz, former CIO at American Cyanamid's Agricultural division, is president of Zeitz & Associates, a New York consultancy specializing in client/server deployment and management

Don't jump on the SAP bandwagon

By William A. Zeitz

The obsession with SAP AG and its R/3 product is like an addiction. "SAP-aholism" can sap (no pun intended) a company's financial and professional resources if left unchecked.

What follows is a true story from a recovered SAP addict. Let's just call him "Bill." After you've heard his chilling tale, maybe you'll realize that SAP R/3 isn't all it's cracked up to be.

Hi, my name is Bill, and I've been free of my addiction to SAP for 18 months now. I used to be the division chief information officer at a large multinational manufacturing company.

In June 1993, after an extensive business process redesign of our logistics and accounts receivable processes, an empowered company team set out to select an enterprisewide software package. I was a member of that team.

When SAP R/3 became a serious contender, I raised some concerns about what I had heard about the lengthy time and high costs of implementation, the lack of flexibility, the difficult interfaces, the lack of reference sites and the company's "do it our way or not at all" history. SAP executives assured our team that SAP R/3 was different from earlier versions. Unlike its R/2 mainframe counterpart, R/3 was flexible and easily customized. These honchos encouraged us to learn the system and "do it ourselves."

I was still wary, but after all, R/3 was the only "fully integrated enterprisewide client/server-based software" game in town. Besides, SAP assured us that R/3 out of the box would meet 85% of our logistics requirements. After being wined and dined at the annual SAP cult meeting (ahem, the annual Sapphire user group meeting) and being mesmerized by R/3's point-and-click front end, our whole team was hooked. I have to admit, I was impressed.

"IS staffs continue to bow to the SAP gods, paying homage to them by contributing large sums of money while waiting for a miracle to occur."

But things started to sour quickly. Here are some of the lowlights:

- We interviewed various Big Six consulting firms and found very few people trained and experienced in R/3. The delay in finding qualified people seriously affected the start of the project.

The people we could get were extremely expensive — we had to budget between 25% and 100% more than SAP suggested for experienced R/3 consultants. The consulting firms' attitude was, "take it or leave it." It was a seller's market. For most other technologies, the industry rule of

Nightmare, *page 103*

Dream

CONTINUED FROM PAGE 100

were considering) have been tempered by a solid understanding of the U.S. market. Based on feedback from its annual customer survey, SAP has improved its training program and established "industry centers of expertise" to address the unique requirements of specific industries.

To me, these are signs of a responsive and customer-focused company.

Break from habits

I'm also convinced that the claim that R/3 is difficult to implement has less to do with the software than with the challenge to think outside the silos most of us have spent our careers automating. Few companies enter an R/3 project with the organizational dynamics and business practices in place to accomplish anything that requires cooperation across functional boundaries, much less to implement a system as integrated and option-rich as R/3.

It may come as bad news to some of these companies that they'll have to invent such practices to succeed with the system. The good news is that they'll be inventing their future. R/3, like any system, can be implemented well or poorly. Companies that have a strong sense of purpose, good project management disciplines and a commitment to teamwork and staff development will be successful with the product. Those that don't, won't.

With regard to the relatively high cost of implementing R/3, I'm the last guy to defend SAP's pricing policies. But keep those costs in perspective.

Black & Decker's investment in R/3 represents a once-in-a-generation repositioning of our systems infrastructure.

The cost we'll incur during the next three years to create the foundation for the company we will become over the next 15 years is small compared with our expected revenue during that period.

When you consider the potential business costs of being constrained by a bargain-basement solution, I'm not convinced that implementing R/3 is more expensive.

And the project cost is more controllable than the SAP-bashers would have you believe.

In particular, if you're fretting about the high cost of third-party consultants to document your practices and perform the "gap analysis" between SAP and your target environment, do what Black & Decker did: Don't use them.

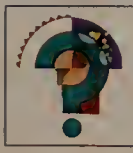
We completed our pilot in just over a year with one full-time consultant from a local company and one or two part-timers from SAP. That's not out of line with my experience implementing other packages.

Americans love to pick on a leader, and doing so sometimes can serve a useful purpose in keeping the leader honest to its vision.

But if the critics really think SAP R/3 is the nightmare, what's the dream? Another system the market has overlooked?

How about staffing up for an extended round of in-house development or ignoring your competition and praying that those state-of-the-'70s legacy systems will get you past the century change? Better yet, how about gluing some of your homegrown systems to parts of four or five vendors' systems?

If this is your idea of a dream, I'll stick with SAP. ■



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Nightmare

CONTINUED FROM PAGE 101

thumb is that you'll spend $2 on consulting support for every $1 you spend on a software license. Convincing senior management that we needed to budget $4 to $8 for SAP consulting for every $1 we were spending on software licenses wasn't an easy task.

As if this weren't enough, we found out (after we had agreed to pay the outrageous rates) that some of these consultants were taking the same courses that our internal people were taking.

Rocky path

• Once we got started, it soon became apparent that R/3 wasn't what it was cracked up to be. SAP announced that some of the functionality we required wasn't available at the time. Work-arounds were the order of the day.

For example, we originally had planned to use our existing, validated data repository to feed customer and product data to R/3. This should have been a breeze — our repository was Oracle; SAP's database was Oracle. It turned out that the feature for accessing data outside SAP's Oracle database didn't quite work.

The customer and product data that R/3 required would have to be entered and validated through the R/3 software. Worse, when we tried to use R/3 to update and validate non-R/3-related data (to ensure the integrity of our data), we couldn't. The software wasn't that open.

• SAP had agreed to make certain changes to meet my company's industry-unique accounts receivable requirements. SAP's accounts receivable module is built on the premise that a customer orders a product, it gets shipped and invoiced, and the customer pays — end of story.

Despite having yet to implement its first [R/3] module, [one major pharmaceutical company] is dealing with a cost overrun of 300%.

Our business is different; the customer sends us money, we send him the product, then we send a reconciling invoice.

It took several hours to convince an SAP vice president that we simply couldn't do it their way and keep our competitive advantage.

SAP wouldn't make the promised changes in its core package. We eventually purchased a third-party accounts receivable package. That meant dealing with the usual interface problems — incompatible file formats, data inconsistencies, a steep learning curve — and the usual finger-pointing when things didn't work out.

• SAP didn't mislead us about the interfaces. The company told us up front that interfacing R/3 with our systems would be a nightmare and our responsibility. SAP was right. Can you believe that after all these problems we continued to ignore the obvious? We were so desperate for a silver bullet that would make information visible across the enterprise and that would magically make it easier for our customers to do business with us. We couldn't bring ourselves to cut our losses.

Outta there

I left the company in June 1994. It was apparent that no one was ready to listen to reason.

From what I've heard, the company went live with one module for one business unit just last month — about a year behind schedule. In all this time, I have felt alone in recognizing my addiction.

My colleagues moan about R/3's high costs, the lack of qualified people, the long time to implement and of being forced by others to "go SAP."

But information systems staffs continue to bow to the SAP gods, paying homage to them by contributing large sums of money while waiting for a miracle to occur.

For example, I know of one major pharmaceutical company that decided to go with R/3 in July 1994 and, despite having yet to implement its first module, is dealing with a 300% cost overrun.

The chief financial officer is hooked. He told me each of the Big Six consulting firms bidding on his re-engineering and SAP implementation told him SAP was a good decision. As if their vested interest would let them say otherwise.

Maybe things will change, and I won't feel so alone. There are more press reports that companies that have large investments in SAP are growing concerned that they haven't yet seen a return on those investments.

Companies that can't afford SAP also are making some noise. They are looking for SAP alternatives that are flexible, cost-effective and faster to implement.

Vendors such as Cantoc Business Systems, Inc., Baan International, Inc., Ross Systems, Inc., Oracle Corp., Datalogix International, Inc., System Software Associates, Inc., Marcam Corp. and Qad, Inc. are being considered. Some user companies can't afford to get hooked on SAP simply because everyone else is.

Well, that's Bill's story — sad but true. Others will wake up to find their bottom lines adversely affected by the SAPaholics in their midst who continue to throw money at SAP implementers and hope to come up a winner.

Wake up, corporate America! ■

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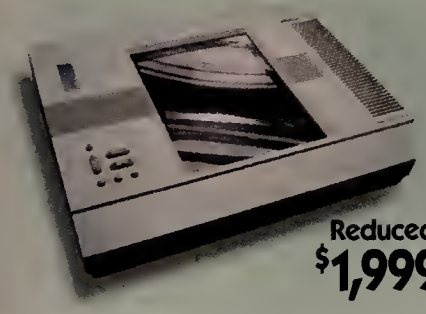

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Computer Careers

Network notability

A shortage of skilled network managers is creating high demand, high regard and high salaries

By Candee Wilde

One of J. B. Shah's top priorities in the new year has been to find a network manager who can help support Electroglas' international network and incorporate client/server and Internet applications.

As director of management information systems and telecommunications at the Santa Clara, Calif.-based subsidiary of General Signal Corp., Shah considers this new position "a critical part of the IS area."

Officials at other companies have reached similar conclusions.

Virtually all the firms that participated in the 1995 salary survey conducted by Edward Perlin Associates, Inc. — a management consulting firm in New York that specializes in compensation practices in data processing — have at least one network manager on staff.

For these managers, total compensation, including salary and benefits, ranges from the "high $80s to $120,000, with some as high as $160,000," according to Perlin Associates.

But these impressive salaries come at a price, judging from Shah's list of 17 areas of responsibility for the new position — to be called network support manager — at Electroglas. Duties will include planning and implementing LANs and WANs for domestic and international sites, implementing enterprisewide Internet services and ensuring the network is robust enough to support future client/server development.

David McNicholas, executive vice president for systems marketing and development at Avis, Inc. in Garden City, N.Y., is convinced that the future is bright for network management experts.

Network management, "is an exploding area in terms of opportunities and choices," McNicholas says. "And the competition is dramatically less. There are thousands of people looking for jobs in computers but relatively few who understand the different network technologies used to move data around."

The demand for qualified network managers definitely exceeds the supply, according to Peter Brown, vice president for telecommunications/information technology operations at conglomerate Cargill, Inc. in Minneapolis. Brown's network management staff comprises people with titles such as manager of service, strategy manager, transmission manager and technical services manager.

"I look for people who have demonstrated an ability to manage complex projects and who are good at expressing their ideas, both verbally and in written form. [Plus] an ability to deal with ambiguity and continuing change."
— Peter Brown, vice president for telecommunications/information technology at Cargill

These people have technical knowledge but not necessarily a technical degree, Brown says.

He says the most important quality he looks for in a network manager, beyond technical knowledge of the integration of voice and data networks and the fundamentals of client/server computing, is "an ability to deal with ambiguity and continuing change."

This flexibility is critical. The challenge for network managers is to keep abreast of the rapid changes in technology, says Dan Gonos, telecommunications manager at Domino's Pizza in Ann Arbor, Mich.

"The people who try to stand still are going to be left behind." ■

Wilde is a freelance writer in Easton, Conn.

NETWORK MANAGEMENT RESOURCES

Associations and Internet sites that offer information and job postings for network managers

Network Management Forum
1201 Mount Kemble Ave.
Morristown, N.J.
(201) 425-1900

Network Management Resources Home Page
http://www.wp.com/LOWENS

Network Professional Association
Atlanta
(404) 681-1668
http://www.npanet.org

Temperate transitioning

Information systems employees must take their own steps to guarantee a smooth start on the new job

By David Weldon

Desperate times call for desperate measures. And because information systems departments continually hire under desperate circumstances, the burden is on new employees to make the job transition quickly and on their own.

But Xerox Corp. in Rochester, N.Y., has experienced firsthand the trouble that can happen when new hires go it alone through their learning curve: Employees feel undirected, uninvolved, frustrated and take longer to get acquainted with the job.

"Our outside hires were being left to their own talents to find their way around," says Robert Monastero, director of human resources for the IS division. Because the company had gone through a lengthy period without hiring, managers had forgotten about the need for a transition period, Monastero says.

"If you have those skills, terrific. But there are a lot of obstacles to overcome during the first 90 days on the job," he says.

The experience at Xerox is typical for many IS organizations, which often hire as an emergency response and spend little time helping new hires adapt to the job.

"The big problem when you join a new company is how does that company do work," says Stuart Kazin, senior vice president of worldwide operations and administration for IS at Lotus Development Corp. in Cambridge, Mass. IS managers often are too busy to spend quality time with new employees and are apt to let them learn as they go. Kazin recommends that each new IS employee seek out a mentor who can help him make the transition. "You should learn quickly what the business is all about, what are the company's goals and missions, what are the users' biggest problems, and decide how you fit into that picture," Kazin says. "You have to ask yourself, 'How do I add value?' If you don't know, go ask."

Such an attitude was the reason Steven Barrett has had a successful transition to his new job as director of networks and telecommunications at Lotus. Barrett was hired by Lotus only five days before the company's acquisition by IBM.

Six months later, Barrett looks back at a transition that was successful because he was aggressive in building relationships, seeking out training and evaluating how he could help the company meet its mission.

"When I joined the organization, I met with everyone one-on-one. I asked a lot of [questions]," Barrett says. "Management wanted someone who could hit the ground running, and one of my biggest assets is the ability to understand the business goals and boil that down into my job." ■

Weldon is *Computerworld*'s senior editor/careers.

ENSURING A WARM WELCOME

To melt the ice in a new job or position, an IS professional can take these steps:

CULTURAL CLIMATE
- Be inquisitive.
- Adopt a communication style.
- Find a mentor to work with you.

BUSINESS CLIMATE
- Know your company's products or services.
- Learn the business's objectives and mission.
- Learn the company's marketing/PR image.

TECHNICAL CLIMATE
- Ask users for their systems trouble spots.
- Match your skills to their needs.
- Take advantage of training, seminars.

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- DB2
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- TCP/IP
- X.25/400/500
- LU6.2
- GUI
- OSF/1
- APPC
- VSAM
- TSO/ISPF
- WINDOWS/NT
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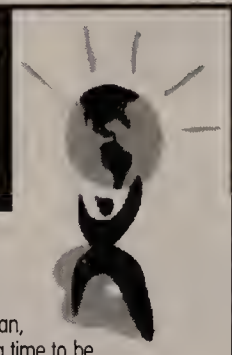

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PROGRAMMER ANALYST - to plan, develop, test & document comp. programs, applying knowledge of programming techniques & comp. systems; evaluate user requests for new or modified programs to determine feasibility, cost & time required, compatibility with current sys. & comp. capabilities; consult with user to identify current operating procedures & clarify program objectives; develop, maintain, test & implement applications related to blood test, process, storage and distribution; interface with automatic test instruments; cater to overseas & domestic customers through electronic mail; backup & restore PC application using TAPE s/w; interlace among applications running on different databases on different nodes of DECNET network; meticulous multi-stage testing & documentation to satisfy FDA requirements; applications on ORACLE RDBMS, VMS & DOS O.S. Reqs. Bach. in Comp. Sci., Systems Analysis, Computer Information Systems, Computer Engineering, Electrical Engineering, Electronic Engineering, Mathematics or its equiv. in ed & exp. & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Software Consultant, Comp-uter Programmer, Systems Analyst, Programmer Analyst or Consultant. Will accept 3 yrs. of college ed. plus 3 yrs. exp. in the job offered or in a related occup. in lieu ol the req'd ed. & exp. Must have 6 mos. related exp. including development & maintenance of applications handling collection, processing, storage & distribution of fresh & frozen blood products; also using ORACLE, VMS & DOS. $48,000/yr. 40 hrs/wk., 8a-5p. Employee to work at various unanticipated locations throughout the U.S. commencing with New York. Must have proof of legal authority to work in the U.S. Send resume to Colorado Dept. of Labor & Employment, Employ-ment Programs, ATTN: Jim Shimada, Tower 2, Ste 400, 1515 Arapahoe St., Denver, CO 80202-2117 and refer to order # CO4458717. Application is by resume only.

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PROGRAMMER ANALYST - to plan, develop, test & document comp. programs, applying knowledge of programming techniques & comp. systems; evaluate user requests for new or modified programs to determine feasibility, cost & time required, compatibility with current sys. & comp. capabilities; consult with users to identify current operating procedures & clarify program objectives; analyze, design, develop, code, test & implement clients' comp. systems & subsystems; develop application programs to establish & maintain voice & data communication between different computers of the sys. as well as remotely located attendants using Assembly, Emulator, C/C++ & object-oriented methodology. Reqs. Bach. in Comp. Sci., Systems Analysis, Computer Information Systems, Computer Engineering, Electrical Engineering, Electronic Engineering, Mathematics or its equiv. in ed. & exp. & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Programmer Analyst, Systems Analyst, Software Engineer or Consultant. Will accept 3 yrs. of college ed. plus 3 yrs. exp. in the job offered or in a related occup. in lieu of the req'd ed. & exp. 1 yr. related exp. must include developing real-time voice & data communication s/w & using each of the following: Assembly, Emulator, C/C++ & object-oriented methodology. Must have proof of legal authority to work in the U.S. $58,000/yr, 40 hrs/wk, 8a-5p. Work at various unanticipated locations throughout the U.S. Application is by resume only. Send resume to Colorado Dept. of Labor & Employment, Employment Programs, ATTN: Jim Shimada, Tower 2, Ste 400, 1515 Arapahoe St, Denver, CO 80202-2117, and refer to order number C04458732

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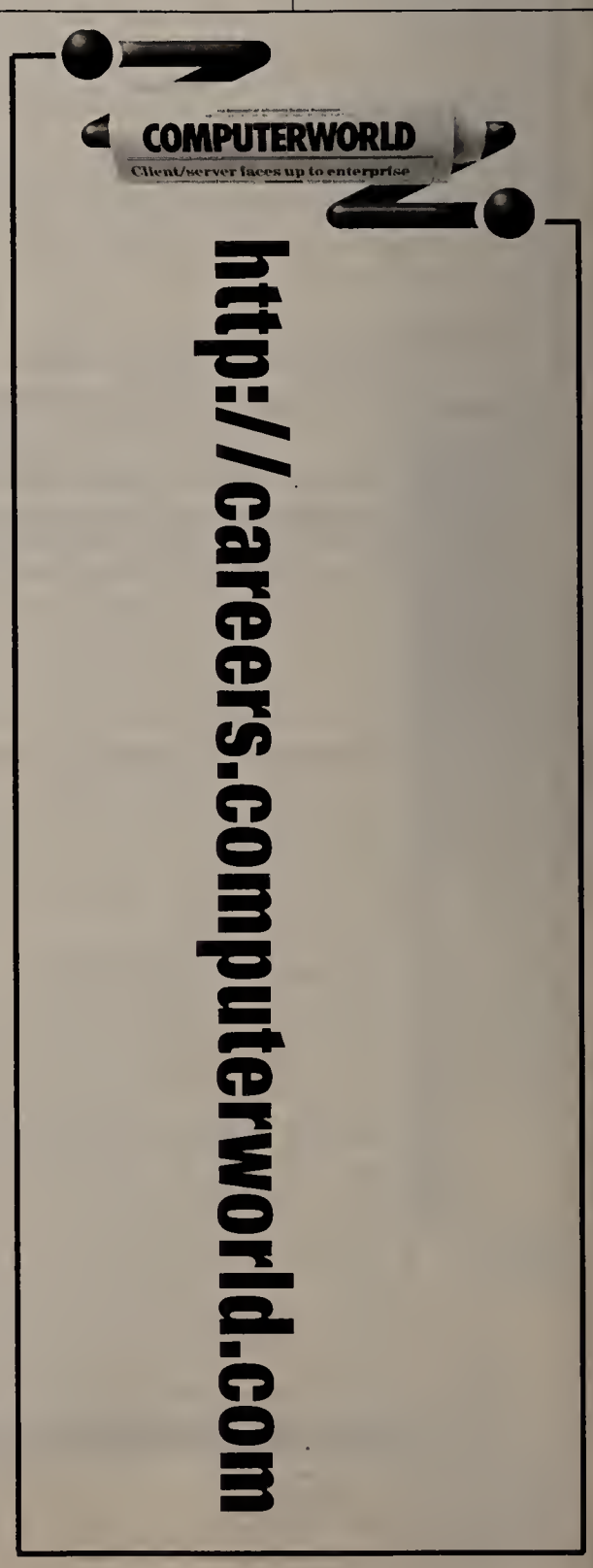

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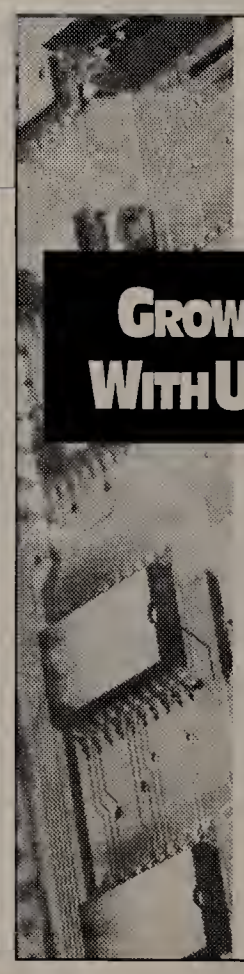

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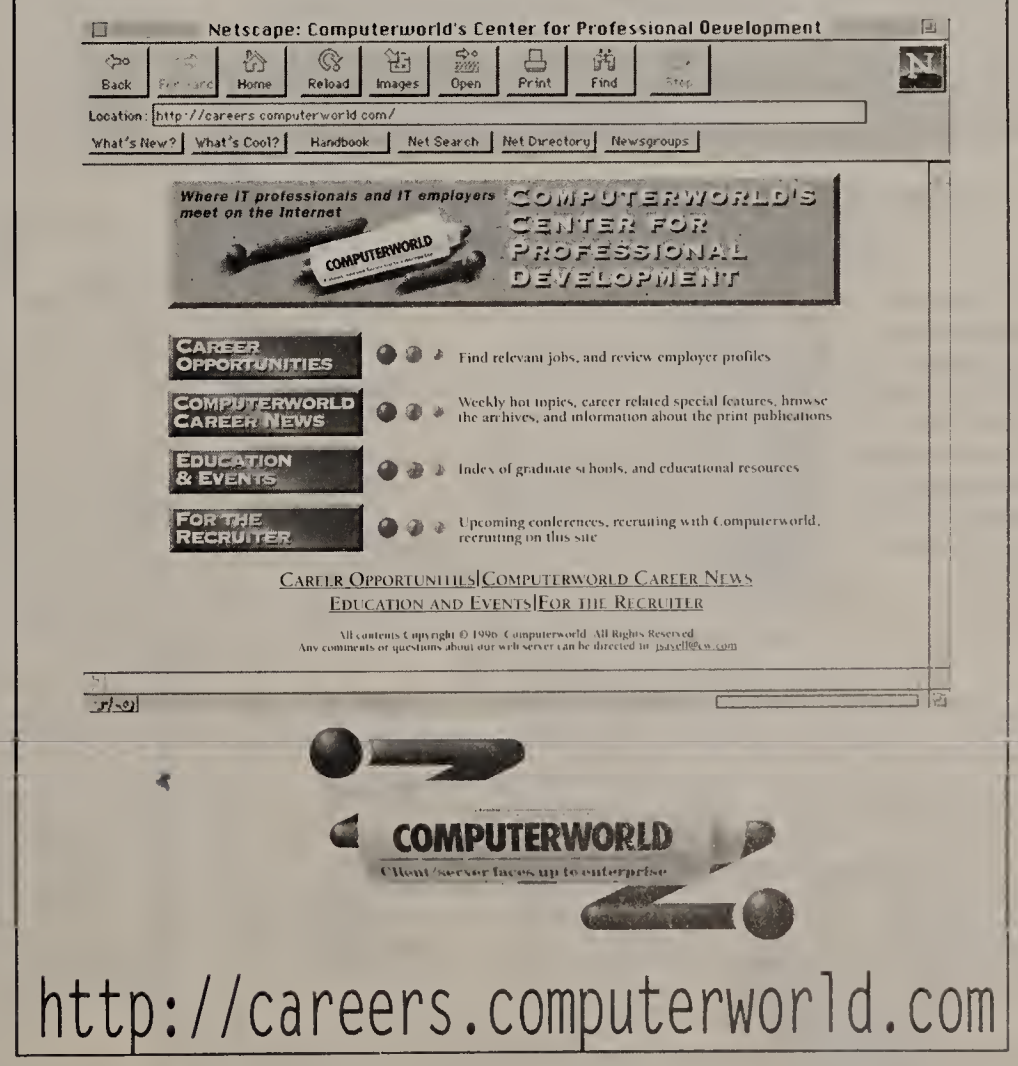

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Marketplace

Distributed's Downside

Disaster recovery presents new challenges in post-mainframe era

BY ALAN RADDING

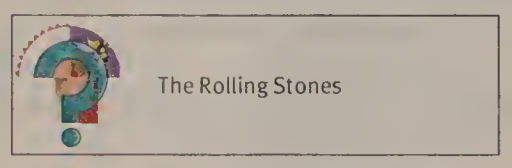
The nature of disasters hasn't changed. But for IS managers, distributed computing has made disaster planning and recovery for floods, fires, earthquakes, tornados and hurricanes more difficult than it was a few years ago.

Critical systems and data are spread throughout an organization. After a disaster, you can restore the glass house at a hot site, but the organization remains effectively dead in the water because critical systems and key data reside on departmental servers and thousands of PCs. And the network that ties everything together remains in shambles.

"It's not enough to recover the glass house. Today, we have to recover the entire distributed environment," says Tonya York, director of business resumption services at Charles Schwab & Co., an investment firm in San Francisco. Every LAN and server "is treated as a little, individual data center," she says. Each has its own disaster plan, including hot-site arrangements and disaster-recovery procedures.

"Network recovery has emerged as the most difficult part of all," says Stephen Goodson, a group manager of IS controls at Ryder System, Inc. in Miami.

Traditional hot sites are the mainstay of host-based system disaster planning. But today's heterogeneous distributed environment is vastly different from the standpoint of maintaining a hot site. A hot-site subscriber is as likely to need any of a dozen Unix-based servers with widely different configurations.



The Rolling Stones

What kind of disaster will hit you?

Of all the natural and man-made disasters, storms and floods top the list when it comes to bringing down computers. According to Comdisco, the leading causes of IS disasters are:

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Floods/Storm	22%
Hardware problem	19%
Power outage	16.5%
Fire/Explosion	12%
Earthquake	7.5%
Hurricane	6.5%
Building shutdown	4.5%

Many pieces to solution

"There are a variety of approaches to the distributed system disaster recovery problem," notes Jeff Marinstein, president of Contingency Planning & Research in White Plains, N.Y. Besides conventional hot sites, the options include quick-ship programs and internal alternative sites. No one approach will solve the entire problem. Instead, experts encourage organizations to piece together a plan using ideas from all the different approaches.

Quick-ship programs are becoming more popular, Marinstein observes. With these programs, the organization identifies the servers and configurations that it will need in the event of a disaster and prepays a portion of the cost of the equipment to ensure that it will be ready in an emergency.

"Quick-ship programs are nice, but they are not realistic for a large organization," York adds. Instead, they form one component of a comprehensive recovery plan in conjunction with a hot site.

An internal backup and recovery plan also sounds good in theory but proves less effective in practice except in small, short-term situations. In this approach, copies of data and applications are stored off-site and reloaded onto another of the organization's servers at another site. One business unit can't back up another, York warns, unless you have purchased grossly more capacity than you need on every server.

"The hot site is still the center of the recovery," Goodson says, but a complete recovery involves several elements. For instance, Ryder uses quick-ship programs for systems that operate independently of the mainframe environment, and the company replicates its headquarters systems at a Comdisco, Inc. hot site. It has a separate plan for the recovery of its private network, Ryder-LINC.

Users present another problem. "When we talk about client/server recovery, we're really talking about recovery of the users," Marinstein says. Until recently, recovery of users hasn't been part of the hot-site vendor menu. "After the [1989 San Francisco] earthquake, we realized that we needed a space where our traders could go, and we started to work with Comdisco," York says.

The three major hot-site vendors, Comdisco, IBM and Sungard Recovery Services, Inc., maintain regional recovery centers across the country. At these centers, firms can find traditional hot-site host facilities, a variety of Unix and PC servers and an array of network connections, workstations and phones for end users. ■

Radding is a freelance writer in Newton, Mass.

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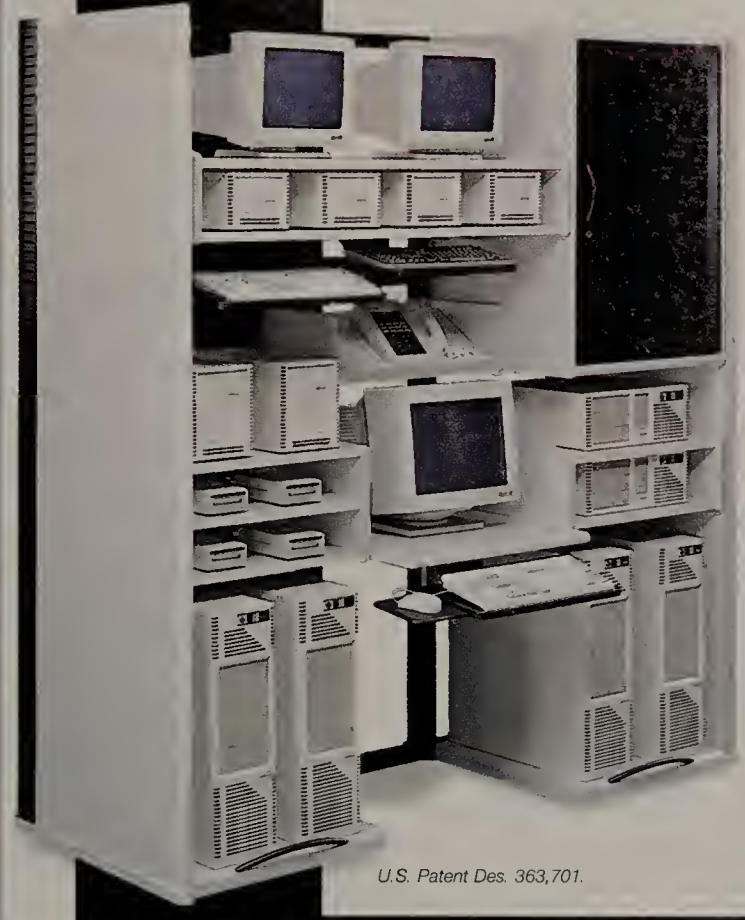

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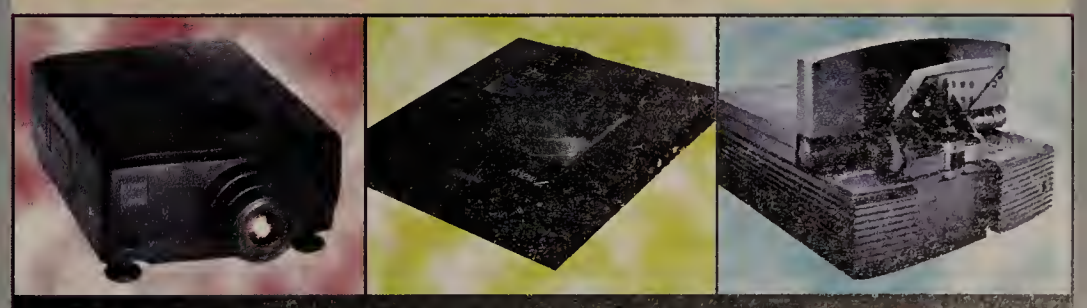

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In Depth Kathleen Gow (508) 820-8236
Careers David B. Weldon (508) 820-8166
Re-engineering/ corporate strategies Joseph Maglitta (508) 820-8192

Associate Editors/Features

CW Guide Cathleen Gagne (508) 620-7729
Managing Steve Ulfelder (508) 620-7745

Research

Bob Fink, senior research manager (508) 820-8116; Kevin Burden, senior researcher; Laura Hunt, research analyst; Amy Malloy, assistant researcher; Stefanie McCann, senior graphics coordinator.

Special Projects, Supplemental Publications

(including Premier 100, Global 100, Best Places to Work, Campus edition, Leadership Series and Salary Survey)
Bruce Rayner, special projects editor (508) 820-8195; Joyce Chutchian-Ferranti, managing editor; Kay Carstens, copy editor.

Copy Desk

Anne McCrory, chief copy editor (508) 820-8205; Christina Aicardi Maguire, assistant chief copy editor; Ellen Fanning, acting assistant chief copy editor; Kimberly Gilliard, senior copy editor; Michelle Grabon, senior production copy editor; Jamie Eckle, Roberta A. Fusaro, Pat Hyde, David Ramel, copy editors.

Graphic Design

Tom Monahan, design director (508) 820-8218; Janell Genovese, Mitchell J. Hayes, Nancy Kowal, senior graphic designers; David Waugh, Mary Beth Welch, graphic designers; Rich Tennant, John Klossner, cartoonists.

Administrative Support

Linda Gorgone, office manager (ext. 8176); Connie Brown (ext. 8178), Aleksandra Skulte (ext. B172), Lorraine Witzell (ext. 8139), editorial assistants; Chris Flanagan, West Coast editorial assistant, (415) 548-5563.

Computerworld Client/Server Journal

Alan Alper, editor (508) 820-8115; Catherine McCrorey, managing editor; Mary Brandel, executive editor; Stephanie Faucher, art director; Kimberlee A. Smith, assistant managing editor.

IDG News Service Correspondents

Paris bureau chief Marc Ferranti (33) 1-4904-8001
Paris correspondent Cara Cunningham (33) 1-4904 7917
Munich correspondent Torsten Busse (49) 89-811-6057
UK correspondent Ron Condon (44) 181-460-0944
Tokyo correspondent Rob Guth (81) 33-358-6122
Taipei correspondent Terho Uimonen (88) 62-500-6523

Last Week's Computer Stocks

Gainers

Percent

Netrix Corp.	34.4
MICOM Communications Corp.	30.8
IPL Systems Inc.	29.2
Gateway 2000 Inc.	27.2
CompUSA Inc.	26.8
Discreet Logic Inc.	26.0
Micrel Semiconductor Inc.	24.4
Data General Corp.(H)	23.8

Dollar

Netscape Comm. Corp.	12.38
Iomega Corp.	8.63
8MC Software Inc.(H)	7.88
CompUSA Inc.	7.50
Spyglass Inc.	7.00
McAfee Associates	6.75
America On-Line	6.75
Netcom On-Line	5.88

Losers

Percent

Apertus Tech.(L)	-27.7
Hogan Systems Inc.	-24.2
Sequoia Systems Inc.	-20.9
Softkey International Inc.	-15.9
Platinum Technology(L)	-15.5
ParcPlace Systems Inc.	-13.6
Sequent Computer Sys.	-13.4
Intelligent Electronics(L)	-13.0

Dollar

Xerox Corp.	-18.13
Cascade Communications	-7.75
Sun Microsystems Inc.	-4.25
Hogan Systems Inc.	-3.00
Stratus Computer Inc.	-2.88
Softkey International Inc.	-2.75
SynOpsys	-2.50
Platinum Technology(L)	-2.31

Industry Almanac

At the core of merger rumors

A few weeks ago, everyone was talking about the Blizzard of '96 — where, when and how many inches. This week's buzz is about the possible merger between **Apple Computer, Inc. (AAPL)** and **Sun Microsystems, Inc. (SUNW)** — when, why and how many dollars.

After posting a $69 million loss in the fourth quarter last year, Apple in Cupertino, Calif., faces tight margins and increasingly stiff competition in the low-end desktop PC market. With a properly positioned and financed partner, Apple hopes to shake free of the doldrums it has found itself in this past year. But what is it about Apple that interests Sun?

Besides Apple's revenue stream and an estimated 20 million users worldwide, Apple's desktop presence could complement Sun's networking and Internet strategies. "Sun would become vertically integrated from the high end with [its] existing servers and workstations, [down] to the low end with desktop personal computers," said Richard Baldry, an analyst at Olde Discount Corp. in Detroit.

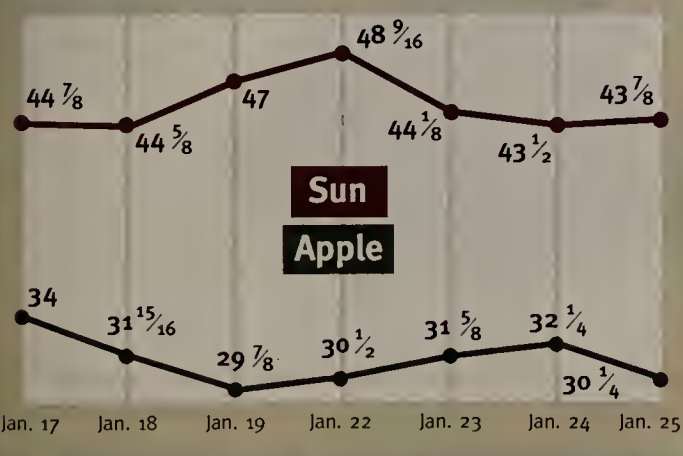
Daniel Kunstler, an analyst at J. P. Morgan Securities in San Francisco, agreed. Apple's desktop machines would bring networking value to Sun by allowing it to "stretch out to everybody no matter what platform they used," he said.

Sun in Mountain View, Calif., also stands to gain in the Internet development and server areas. By combining Sun's success with Unix Internet servers and Apple's Internet server success, Sun could field a formidable team.

Certainly, there are risks for Sun. With Apple's annual revenue nearly double that of Sun, "Sun would be integrating a much larger organization — [one] that is operating with continuing losses," Baldry said. This "could be a distraction from Sun's present core business." — *Stewart Deck*

Shall we dance?

Apple's and Sun's stocks made some moves last week as rumors swirled about a possible merger



Exch	52-Week Range			Jan. 26 3 PM	Wk Net Change	Wk Pct Change
Communications and Network Services						**UP 1.78%**
COMS	53.63	22.25	3 COM Corp.	45.00	1.50	3.4
AIT	60.88	40.75	AMERITECH Corp.	59.38	1.63	2.8
APTS	15.00	2.75	Apertus Tech. (L)	3.75	-1.44	-27.7
T	68.88	47.88	ATT	64.63	-0.75	-1.1
ASND	45.50	6.13	Ascend Communications (H)	42.25	0.50	1.2
8NYN	18.63	6.00	8anyan Systems Inc.	8.38	0.00	0.0
8NET	50.00	18.88	8ay Networks Inc.	40.81	0.31	0.8
8EL	71.13	50.38	8ell Atlantic Corp.	67.38	-1.75	-2.5
8LS	45.88	28.13	8ellsouth Corp.	41.25	-0.75	-1.8
88N	48.75	15.63	8olt, 8eranek and Newman	29.00	0.13	0.4
8RKT	34.00	10.50	8rooktrout Technology (H)	30.00	-1.75	-5.5
CS	87.75	37.38	Cabletron Systems	73.38	1.63	2.3
CSCC	92.50	29.25	Cascade Communications	73.75	-7.75	-9.5
CGRM	25.13	12.75	Centigram Communications	16.75	0.00	0.0
CSCO	89.38	32.38	Cisco Systems Inc.	80.88	5.13	6.8
CLIX	11.38	6.00	Compression Labs Inc.	6.63	0.00	0.0
CMNT	12.75	4.00	Computer Network Tech.	4.75	-0.13	-2.6
XCOM	14.50	8.75	CrossComm	10.38	0.13	1.2
DIGI	64.00	21.88	DSC Communications	26.38	0.25	1.0
FORE	67.75	25.50	FORE Systems Inc.	55.50	-1.75	-3.1
GDC	28.63	9.25	General Datacomm Inds.	12.75	1.00	8.5
GSX	42.50	28.00	General Signal Networks	33.63	0.75	2.3
GTE	46.50	31.50	GTE Corp.	45.38	0.38	0.8
MCIC	28.38	17.38	MCI Commmunications Corp. (H)	27.25	-0.63	-2.2
MICM	12.50	5.50	MICOM Communications Corp.	8.50	2.00	30.8
MNPI	28.00	9.00	Microcom Inc.	24.00	1.50	6.7
NETM	34.00	10.00	NetManage Inc.	13.00	1.13	9.5
NTRX	9.88	3.63	Netrix Corp.	5.38	1.38	34.4
NCDI	12.00	4.00	Network Computing Devices	7.00	0.13	1.8
NWK	42.00	19.75	Network Equipment Tech.	23.50	-1.88	-7.4
NETG	46.50	22.75	Network General	35.50	3.75	11.8
NWTH	42.19	7.38	Net Worth Inc.	42.13	0.00	0.0
NN	52.25	25.00	Newbrioge Networks Corp. (H)	49.13	0.38	0.8
NT	45.75	31.50	Northern Telecom Ltd. (H)	44.75	1.00	2.3
NOVL	23.25	12.25	Novell Inc. (L)	12.38	-1.25	-9.2
NYN	54.00	37.13	Nynex Corp.	51.88	-0.50	-1.0
OCTL	42.63	18.00	Octel Communications Corp.	36.25	1.25	3.6
ODSI	43.25	12.75	Optical Data Systems Inc.	18.88	-0.88	-4.4
PCTL	43.88	11.50	Picturetel Corp.	40.00	1.75	4.6
PTON	10.75	5.50	Proteon Inc.	6.50	0.13	2.0
RACO	7.88	3.13	Racotek Inc.	5.25	0.25	5.0
RETX	5.50	1.81	Retix	1.88	0.00	0.0
SFA	24.88	11.38	Scientific Atlanta Inc.	15.25	1.00	7.0
SHVA	77.50	27.00	Shiva Corp.	70.94	4.94	7.5
S8C	60.25	39.63	Southwestern 8ell Corp.	55.75	0.00	0.0
FON	42.88	27.25	Sprint Corp. (H)	41.63	-0.13	-0.3
SMSC	31.63	12.50	Standaro Microsystems Corp.	16.94	-0.69	-3.9
STRM	82.00	32.00	Stratacom Inc.	73.75	3.00	4.2
T8IT	8.63	2.38	Telebit Corp.	5.00	0.63	14.3
USRX	110.50	23.13	US Robotics	89.25	-0.25	-0.3
USW	48.38	28.38	US West Inc.	34.63	0.63	1.8
XIRC	19.00	8.88	Xircom	10.13	-0.25	-2.4
XLGX	78.00	15.50	Xylogics Inc.	58.75	0.00	0.0
PCs and Workstations						**UP 3.13%**
AALR	9.63	4.13	Advanceo Logic Research	7.00	0.13	1.8
AAPL	50.13	29.25	Apple Computer Inc. (L)	29.88	0.00	0.0
ASTA	19.13	7.50	AST Research Inc.	8.38	-0.44	-5.0
CPQ	56.75	31.13	Compaq Computer Corp.	46.88	-0.13	-0.3
DELL	49.38	19.75	Dell Computer Corp.	27.25	0.75	2.8
GATE	37.50	16.00	Gateway 2000 Inc.	25.75	5.50	27.2
HWP	96.63	50.13	Hewlett Packard Co.	83.13	5.38	6.9
MUEI	29.88	8.75	Micron International Inc.	10.50	1.00	10.5
NIPNY	75.13	45.13	NEC America	60.00	-1.50	-2.4
SGI	45.63	21.13	Silicon Graphics	27.50	0.50	1.9
SUNW	51.50	15.00	Sun Microsystems Inc.	42.75	-4.25	-9.0
Large Systems						**OFF 1.76%**
AMH	13.63	7.50	Amoahl Corp.	7.50	-0.19	-2.4
CNX	7.88	3.63	Convex Computer	4.75	0.00	0.0
CYR	29.25	14.63	Cray Research Inc.	24.88	-0.63	-2.5
DGN	16.25	6.75	Data General Corp. (H)	15.63	3.00	23.8
DEC	73.63	31.13	Digital Equipment Corp. (H)	71.38	4.63	6.9
I8M	114.63	70.25	I8M	105.38	3.38	3.3
MDCD	12.75	3.00	Meridian Data Inc.	10.63	-0.25	-2.3
NETF	7.75	4.25	NetFrame	5.38	-0.63	-10.4
SQNT	25.38	12.13	Sequent Computer Sys.	12.13	-1.88	-13.4
SEQS	10.00	3.56	Sequoia Systems Inc.	4.25	-1.13	-20.9
SRA	36.13	23.00	Stratus Computer Inc.	26.63	-2.88	-9.7
TDM	18.75	9.38	Tanoem Computers Inc. (L)	9.38	-0.50	-5.1
TRCD	6.25	2.50	TriCord Systems	3.00	0.13	4.3
UIS	13.63	5.50	Unisys Corp.	6.88	0.25	3.8
Software						**UP 2.85%**
AD8E	74.25	28.50	Adobe Systems Inc.	39.75	2.63	7.1
AMSWA	8.75	2.75	American Software Inc.	4.88	-0.13	-2.5
APLX	29.00	6.75	Applix Inc.	23.00	-0.50	-2.1
ARSW	48.50	28.75	Arbor Software (L)	33.75	2.25	7.1
ACAD	53.00	27.75	Autodesk Inc.	29.38	-0.63	-2.1
8ACH	10.75	3.75	8achman Info. Systems	9.50	0.19	2.0
8GSS	42.00	24.25	8GS Systems Inc.	35.25	0.00	0.0
8MCS	52.25	27.63	8MC Software Inc. (H)	50.13	7.88	18.6
8OOL	26.38	17.88	8oole and 8abbage	21.38	0.88	4.3
8ORL	20.63	6.50	8orlano Int'l Inc.	17.25	0.88	5.3
CESH	3.94	1.38	CE Software	2.63	-0.13	-4.5
CYE	27.88	12.38	Cheyenne Software Inc.	20.13	-2.25	-10.1
COGNF	45.63	16.00	Cognos Inc.	39.00	0.13	0.3
CA	70.50	33.13	Computer Associates	62.88	0.63	1.0
CVN	15.50	4.63	Computervision Corp.	12.50	-1.38	-9.9
CPWR	40.75	15.50	Compuware Corp.	17.81	1.06	6.3
CSRE	27.25	9.88	Comshare Inc.	24.75	2.50	11.2
COSFF	19.50	8.38	Corel Corp.	9.88	0.00	0.0
DWTI	16.25	6.25	Dataware Technologies Inc. (L)	7.50	1.00	15.4
DSLGF	32.25	14.13	Discreet Logic Inc.	24.25	5.00	26.0
FILE	58.63	29.75	Filenet Corp. (H)	54.00	4.63	9.4
DDDDF	8.25	3.38	4th Dimension	4.63	0.25	5.7
FTPS	40.63	10.38	FTP Software Inc. (L)	12.63	2.25	21.7
GSOF	26.00	7.50	Group I Software	7.50	-1.00	-11.8
GPTA	12.75	4.88	Gupta	6.13	0.00	0.0
HOGN	13.88	4.63	Hogan Systems Inc.	9.38	-3.00	-24.2
HYSW	28.38	15.63	Hyperion Software Corp.	18.00	-2.00	-10.0
IRIC	18.63	10.00	Information Resources	14.19	-0.50	-3.4
IFMX	34.38	14.88	Informix Corp.	30.38	-0.06	-0.2
INGR	19.25	8.88	Intergraph Corp. (H)	18.50	0.88	5.0
LEAF	12.63	3.88	Interleaf Inc.	7.06	0.56	8.7
ISLI	26.25	8.75	Intersolv Inc.	12.13	1.75	16.9
INTU	89.25	29.63	Intuit Inc.	58.13	3.63	6.7
MGICF	11.50	3.63	Magic Software Enterprises	9.88	0.50	5.3
MANU	20.50	8.50	Manugistics Group Inc.	11.50	0.25	2.2
MAPS	40.00	10.00	MapInfo Corp.	12.75	0.44	3.6

Exch	52-Week Range			Jan. 26 3 PM	Wk Net Change	Wk Pct Change
MATH	7.38	2.00	MathSoft	6.50	0.38	6.1
MCAF	52.88	10.13	McAfee Associates	45.25	6.75	17.5
MENT	22.88	12.38	Mentor Graphics	14.50	-0.88	-5.7
MIFGY	13.75	8.25	Micro Focus	8.88	0.00	0.0
MGXI	15.13	5.75	Micrografx Inc.	13.75	-0.38	-2.7
MSFT	109.25	58.25	Microsoft Corp.	90.88	-1.00	-1.1
ORCL	49.13	27.88	Oracle Corp. (H)	48.00	2.50	5.5
PMTC	72.56	35.75	Parametric Technology	60.38	0.38	0.6
PARQ	20.00	6.63	ParcPlace Systems Inc.	8.75	-1.38	-13.6
PSFT	47.00	15.00	Peoplesoft	41.50	2.00	5.1
PTEC	16.13	6.13	Phoenix Technologies	13.25	-0.75	-5.4
PSQL	16.88	3.38	Platinum Software	4.75	0.88	22.6
PLAT	26.00	12.63	Platinum Technology (L)	12.63	-2.31	-15.5
PRGS	38.00	19.63	Progress Software Corp.	27.50	-0.25	-0.9
RN8O	26.75	14.00	Rainbow Technologies Inc.	21.56	-0.19	-0.9
ROSS	7.75	2.19	Ross Systems	2.75	0.13	4.8
SDTI	58.25	10.25	Security Dynamics Tech.	52.50	5.00	10.5
SKEY	51.75	14.25	Softkey International Inc.	14.50	-2.75	-15.9
SPCO	5.63	2.19	Software Publishing Corp.	2.63	0.06	2.4
SOTA	12.50	6.63	State of the Art	10.38	0.50	5.1
SSW	62.38	32.88	Sterling Software Inc.	57.00	4.75	9.1
SDRC	30.50	5.88	Struct. Dynamics Research	27.81	2.94	11.8
SY8S	47.50	19.88	Sybase Inc.	32.88	-2.25	-6.4
SYMC	33.25	9.88	Symantec Corp.	11.00	-0.25	-2.2
SNPS	38.50	22.25	SynOpsys	30.75	-2.50	-7.5
SSAX	30.63	11.25	System Software Assoc.	22.00	1.38	6.7
SYSF	18.13	7.00	Systemsoft Corp.	12.63	1.88	17.4
TRUV	10.13	3.63	Truevision Corp.	5.63	-0.13	-2.2
VIEW	15.13	8.38	ViewLogic Systems	10.50	0.38	3.7
VMRK	21.50	5.75	VMark Software Inc.	8.63	1.13	15.0
WALK	9.75	4.63	Walker Interactive Systems	8.50	1.38	19.3
WALL	55.50	13.00	Wall Data Inc. (L)	15.00	0.13	0.8
WANG	19.50	11.13	Wang Laboratories Inc.	17.13	0.63	3.8
Internet						**UP 11.79%**
AMER	46.25	13.25	America On-Line	41.75	6.75	19.3
NETC	91.50	19.00	Netcom On-Line	38.38	5.88	18.1
NSCP	174.00	45.75	Netscape Comm. Corp.	157.00	12.38	8.6
QDEK	39.50	3.19	Quarterdeck Corp.	16.94	1.44	9.3
SPYG	61.00	13.25	Spyglass Inc.	41.75	7.00	20.1
UUNT	98.75	21.75	UUNET Tech.	47.00	-2.25	-4.6
Semiconductors						**UP 8.96%**
AMD	39.25	16.13	Aovanced Micro Devices	20.13	1.50	8.1
ADI	26.38	13.38	Analog Devices Inc.	22.75	0.25	1.1
CHPS	15.88	6.25	Chips and Technologies	9.13	0.63	7.4
CRUS	61.13	12.13	Cirrus Logic	21.63	3.00	16.1
CY	27.75	10.00	Cypress Semiconductor Corp.	14.13	2.50	21.5
INTC	78.38	34.50	Intel Corp.	54.31	3.06	6.0
LSI	62.50	19.75	LSI Logic Corp.	27.25	1.88	7.4
LSCC	43.00	21.13	Lattice Semiconductor	31.50	2.50	8.6
MCRL	32.50	12.50	Micrel Semiconductor Inc.	19.75	3.88	24.4
MU	94.75	21.88	Micron Technology	34.50	3.38	10.8
MOT	82.50	44.75	Motorola Inc.	53.13	2.13	4.2
NSM	33.63	14.88	National Semiconductor	17.63	0.13	0.7
SERA	28.75	8.13	Sierra Semiconductor	17.75	0.50	2.9
TXN	83.75	12.75	Texas Instruments	47.75	0.50	1.1
VLSI	39.13	12.13	VLSI Technology	14.75	0.25	1.7
WWTK	6.88	1.88	Weitek	2.69	0.44	19.4
WDC	22.13	13.13	Western Digital Corp.	18.88	1.38	7.9
XLNX	55.50	19.00	Xilinx	40.75	3.00	7.9
ZLG	54.13	28.50	Zilog Inc.	35.63	4.13	13.1
Peripherals and Subsystems						**UP 4.75%**
APCC	25.88	8.13	American Power Conversion (L)	8.13	-0.38	-4.4
ADPT	48.38	25.75	Adaptec Inc.	43.50	0.63	1.5
8TEC	22.75	14.75	8anctec Inc.	18.75	0.00	0.0
C8EX	13.13	3.50	Cambex Corp.	6.88	-0.25	-3.5
CGN	7.25	2.13	Cognitronics Corp.	5.00	-0.25	-4.8
CNR	25.75	9.25	Conner Peripherals (H)	25.25	2.25	9.8
CREAF	14.13	5.88	Creative Technologies Inc.	7.88	0.25	3.3
RACE	13.13	3.63	Data Race Inc.	4.25	-0.25	-5.6
DTM	9.38	4.50	Dataram Corp.	6.38	0.38	6.3
EMC	27.38	13.00	EMC Corp.	19.50	2.38	13.9
EMLX	28.50	6.38	Emulex Corp.	8.63	1.63	23.2
ESCC	25.25	12.00	Evans and Sutherland	21.75	2.13	10.8
EX8T	19.25	10.00	Exabyte	13.88	0.38	2.8
IISLF	4.25	1.56	Intelligent Info. Systems	1.75	0.13	7.7
IOMG	53.75	4.38	Iomega Corp.	48.25	8.63	21.8
IPLSA	7.88	2.38	IPL Systems Inc.	3.88	0.88	29.2
KMAG	37.50	11.13	Komag Inc.	27.75	-1.75	-5.9
MXTR	7.25	3.88	Maxtor Corp.	6.63	0.00	0.0
MLIS	11.50	2.75	Micropolis Corp.	3.38	-0.13	-3.6
MTSI	40.75	11.25	Micro Touch Systems Inc.	13.50	1.25	10.2
PEAK	34.75	15.75	Peak Technology Group	30.50	1.75	6.1
PNCL	19.75	5.88	Pinnacle Micro Inc.	15.25	1.25	8.9
PTNX	38.75	13.50	Printronix Inc.	21.00	2.13	11.3
QNTM	28.50	13.75	Quantum Corp.	18.13	0.75	4.3
RDUS	15.00	1.88	Radius Inc.	1.94	-0.06	-3.1
SEG	58.63	23.63	Seagate Technology (H)	57.63	4.88	9.2
STK	31.25	17.88	Storage Technology	27.25	2.50	10.1
TEK	61.88	31.38	Tektronix Inc.	44.88	1.13	2.6
XRX	144.63	103.38	Xerox Corp.	121.50	-18.13	-13.0
Services						**UP 4.66%**
AMSY	22.88	11.38	American Mgmt. Systems (H)	22.63	1.00	4.6
ANLY	33.00	19.81	Analysts Int'l	29.50	1.75	6.3
AUD	41.25	29.25	Auto Data Processing	38.50	-1.13	-2.8
CATP	61.00	22.50	Cambridge Tech. Partners	54.75	2.50	4.8
CEN	47.50	27.50	Ceridian Corp.	42.88	4.00	10.3
CDO	23.75	16.13	Comdisco Inc.	21.25	-0.25	-1.2
CHRZ	26.75	6.38	Computer Horizons	25.50	2.75	12.1
CSC	79.38	46.50	Computer Sciences (H)	75.00	0.38	0.5
TSK	22.00	8.50	Computer Task Group	18.38	1.13	6.5
CPU	44.38	16.75	CompUSA Inc.	35.50	7.50	26.8
CDAT	21.38	5.88	Control Data Systems Inc.	18.75	3.50	23.0
EGGS	14.25	5.00	Egghead Discount Software (L)	5.75	0.63	12.2
GME	55.13	37.38	General Motors E (EDS) (H)	54.63	0.50	0.9
INAC	16.00	7.88	Inacom Corp. (H)	15.25	0.25	1.7
INEL	14.63	5.00	Intelligent Electronics (L)	5.00	-0.75	-13.0
MSEL	8.38	3.75	Merisel (L)	3.81	-0.19	-4.7
MICA	15.00	7.25	Microage Inc.	8.50	0.75	9.7
PAYX	55.00	25.88	Paychex (H)	51.25	-1.88	-3.5
PMS	54.25	40.75	Policy Management Sys.	47.25	3.25	7.4
REY	39.63	23.63	Reynolds and Reynolds	38.25	0.75	2.0
SEIC	24.50	16.75	SEI Corp.	22.13	0.63	2.9
SMED	57.63	32.00	Shared Medical Systems	55.75	-0.25	-0.4
SHKIF	13.13	4.75	SHL Systemhouse	12.63	0.00	0.0
SSPE	26.50	14.88	Software Spectrum Inc	19.25	1.25	6.9
SNDT	32.50	17.75	Sungard Data Systems	29.25	1.00	3.5

KEY: (H) = New annual high reacheo in perioo (L) = New annual low reached in period

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IS must deal with 'net devices

CONTINUED FROM PAGE 1

First National Bank of Chicago, for example, plans to install these machines in most of its several thousand branches by the end of next year.

"We can't offer [graphical] marketing information on our ATMs or bank-by-phone systems, but we could offer details like that on the [World Wide] Web," said Kurt Heuberger, product manager of Internet development at the Chicago-based bank.

Web wins

Automated teller machines, or ATMs, can't offer the graphics and interactivity with users that the World Wide Web can, he said. "If you want to see how the latest interest rates might play out on a second mortgage, you wouldn't have to wait in line for customer service," he added.

A huge Sun shop already, the bank has been approached by the vendor about buying in to Sun's Internet appliance idea. Sun doesn't have even a prototype to demonstrate, but that could change if it buys Apple Computer, Inc., Heuberger said.

Apple's Internet device design has been licensed by Tokyo-based Bandai Co., which plans to ship products in March (see chart).

And a large public service company in Canada is talking with TransPhone about buying "potentially several hundred" units of its device, according to a source close to the negotiations.

SunRiver's Internet Terminal, meanwhile, was built to run miniature applications created with Sun's Java programming language.

Companies could use Internet Terminals to cut the cost and hassle of maintaining large PC installations, said Gerald Youngblood, president and CEO of SunRiver.

If end users linked to internal Internet networks downloaded Java applets for word processing or other routine tasks only as needed, "then IS wouldn't have to worry nearly as much about updating PCs and installing new versions of software on individual machines," Youngblood said.

Oracle on-line

IDG News Service in Boston last week reported that Oracle plans to launch a private on-line service with several unnamed telecommunications firms. The service, which is to be announced within two weeks, is intended, in part, as a sales vehicle for Oracle's not-yet-available Network Computer, the news service reported.

Adopting an electronic commerce strategy. See page 69.

They slice, they dice . . .

Some would-be Internet appliance makers will target home users with their low-cost on-line devices; others, such as TransPhone, plan to zero in on corporate accounts

Vendor	Internet appliance	Price	Availability
Acorn Cambridge, England	NetSurfer, a stripped-down PC for on-line use only	Less than $500	Q1 1996
Bandai Toyko	Pippin multimedia box, based on Apple's Power Macintosh	$500 to $700	March 1996*
IBM Armonk, N.Y.	InterPersonal Computer, a stripped-down PC for on-line use only	$500 to $2,000	Fall 1996
Oracle** Redwood Shores, Calif.	Network Computer, a stripped-down PC for on-line use only	Less than $500	Q1 1996
Philips Eindhoven, Netherlands	Kit to convert TVs or Philips' CD-I CD-ROM player	$150	October 1995
Sega Tokyo	Kit to convert Sega's Saturn game box	$100	1996
SunRiver Austin, Texas	Internet Terminal, a stripped-down PC for on-line use only	$500 to $1,000	March 1996
TransPhone Ottawa, Ontario	Telephone/laptop/Internet terminal with credit-card swiper	Less than $500	March 1996

* In Japan; U.S. ship date is expected sometime this year
**Oracle says it won't build the boxes but will sell its design to third-party hardware makers

SAS unveils client/server applications

CONTINUED FROM PAGE 1

$482 million in revenue, SAS is the largest privately held software company in the world.

"What SAS is doing is building a structure that allows cross-access between various disciplines," such as human resources and finance, said Bob Moran, director of decision support at Aberdeen Group, Inc. in Boston.

That structure bolsters users' ability to easily delve more deeply into a wider array of information, Moran said.

Different strengths

The power of SAP and Oracle financial applications lies in their ability to process transactions. The SAS finance package, by contrast, will have limited general ledger capabilities and will focus on its core information access and reporting capabilities, company officials said.

The software will provide "an opportunity for users to do reporting at a higher, integrated level," said Mark Moorman, program manager for application development at SAS.

"It's a win-win for everybody, users and applications vendors," said Clare Gillan, an analyst at International Data Corp. in Framingham, Mass.

> **"What SAS is doing is building a structure that allows cross-access between various disciplines," such as human resources and finance.**
>
> — Bob Moran, director of decision support, Aberdeen Group

Many companies such as The Gallup Organization, a market research company and SAS user in Lincoln, Neb., now use a combination of spreadsheets and custom reports to consolidate and analyze financial data from different accounting systems. Each new report requires a new custom program, many of which are built using SAS tools.

The SAS finance package would streamline this process by enabling Gallup to combine and analyze data from what are now three separate and proprietary systems for general ledger, accounts payable and accounts receivable.

The SAS finance package also would ease pressures on information systems staffers because they would no longer need to write custom programs for new reports, said Jonathan Farer, a SAS user at The Robert Plan Corp., a specialty insurance company in Uniondale, N.Y.

OLAP is key

OLAP, or on-line analytical processing technology, is at the heart of the client/server applications and allows the cross-platform data access. SAS' multidimensional data navigation tools also are incorporated into the packages.

Access is key

The No. 1 reason companies deploy client/server systems is to provide users desktop access to central or multiple source data, according to a 1995 survey conducted by the Technology Managers Forum.

Corel emerges as likely WordPerfect buyer

CONTINUED FROM PAGE 1

in acquisitions discussions with Novell [CW, Jan. 2] but was slightly outbid by Corel, sources familiar with the talks said.

IBM, Computer Associates International, Inc., Claris Corp. and a group of investors led by independent consultant Will Fastie also were mentioned as early suitors. Only Fastie's group expressed interest in making an actual bid for the company. Fastie said he was unable to raise the capital.

Another factor that reportedly influenced Novell's decision to continue talks with Corel was the company's name recognition. Sources close to Novell said selling to Corel would provide a smoother transition for WordPerfect's large installed base of users.

One observer agreed.

"I think it is easier for Novell to tell its customers, 'Look we are selling the WordPerfect franchise to a large, reputable software company that has worldwide distribution and a proven track record for supporting complex software applications,'" said an analyst who requested anonymity. "None of the WordPerfect users knows who Bain is, and they might not feel as comfortable continuing to use WordPerfect products."

Product stable

Products in Novell's Business Applications Division include: the WordPerfect word processor, Quattro Pro spreadsheet, WordPerfect Presentations business graphics package, InfoCentral personal information manager and Envoy portable document-exchange platform.

At least one observer isn't convinced Corel is a good match.

"There isn't a natural synergy," said Chris Le Tocq, an analyst at Dataquest, Inc., a market research firm in San Jose, Calif. "There isn't necessarily a fit at the product level. It [gives] Corel another channel for selling Draw, but still, the companies are very different, and the customers are very different."

Corel Corp.

1995 revenue
$196.4M

1995 profit
$14.5M

Market capitalization
$882.5M

Stock price per share
$10*

Founded
1985

Employees
412

*Jan. 25 Nasdaq stock exchange

Java is hot, hot, hot

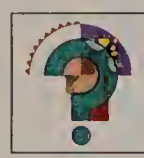
Charles Babcock

What's so hot about Java? A lot, actually.

It brings stodgy World Wide Web pages to life with dancing type, animated cartoon characters and lifelike simulations. It's the first language designed to function over a network. And it has built-in safeguards against viruses, which makes it a lot safer to download code from the Internet.

You routinely run the risk of importing a virus if you download a file from the Internet on most systems. It's hard for the originator of the file to protect you because viruses, which are injected by an outsider, are hard to detect in compiled C code.

Java has a built-in verifier, which can check the runtime code of a Java-based applet — a self-contained, object-based application — against the compiled version. Any discrepancy sends up a warning flag.



Brook's law

A Java applet downloaded from the 'net doesn't try to write to your disk, access your files or direct random looks at memory the way a C program can. It won't try to add to one of your C or C++ programs or access another Java applet, all known avenues of a virus attack.

Java also is platform-independent compared with predecessor languages. It translates its source code into an intermediate byte code. These short instructions are transferred over the network to call specific methods and functions when run through the Java interpreter on the client. Arthur A. van Hoff, the senior staff engineer at Sun Microsystems who wrote the final Java compiler, says, "The verifier can ask, 'Is this set of byte codes generated by a legal compiler?' The program can't lie about itself." In that way, Java's verifier provides a way to check whether the original program was tampered with, van Hoff says.

The Meta View

Java is C++ "without the guns, knives and mace," says Kim Polese, Java marketing manager.

This makes Java a unique language, designed to shine in networking. If a bank wanted to send you an applet to check your retirement fund balance, you could import the code without fear that someone would be secretly looking for your account identification number.

Java also appears to set a new standard for portable applications over a network. Sun has ported Java to run on the Macintosh, Windows 95 and Windows NT operating systems and Sun's Solaris. Independent software companies have ported Java to HP-UX, OS/2 and NextStep. Sun offers Java source code free to developers who put their ports back into the public domain for other developers, said Kim Polese, marketing manager for Java. Java binaries can be downloaded for free from the 'net.

Java is structured to simplify some of the vagaries of object-oriented languages. C++ allows multiple inheritance for a class; Java follows Smalltalk in allowing only single inheritance. Java also prevents you from creating pointers to private data; this can be done inadvertently in C.

A lot of the creative work behind Java was done by a team lead by James Gosling. Van Hoff, known in the industry for doggedly simplifying briar patches of code, termed Java "a bit of a mess" when he got it. He set about cleaning it up and rationalizing it.

Polese said the result was something that looks like C++ "without the guns, knives and mace" or all the hidden traps of that complicated language. Part of Java's popularity is a backlash among C++ programmers who, after years of work, acknowledge to their fellows and occasionally to the press that they haven't mastered the language.

Finally, Java's appeal isn't just technical merit. It makes the Web a whole lot more fun than it was ever going to be under Hypertext Markup Language. Now when you log in to a Web page, a coffee cup steams away and snippets of video action appear.

So put Java on the front burner.

* * *

Barnes and Noble in downtown Seattle has sold more than 1,000 copies of Bill Gates' *The Road Ahead*, while it has yet to stock *Hooked on Java*, one of the leading how-to-do-a-hot-Web-site books. But at Stacey's Bookstore in Palo Alto, Calif., *Hooked on Java*, by van Hoff, Sami Shaio and Orca Starbuck, is outselling Gates' book 3-to-1. In December and January, Stacey's sold 101 copies of *The Road Ahead* and 318 copies of the Java book. "We could have sold another 500 if we had them," a store spokesperson said.

Babcock is *Computerworld*'s technical editor. His Internet address is charles_babcock@cw.com.

Inside Lines

Promiscuous Prodigy

Sears, Roebuck may be trying to decide whether or not to sell its 50% stake in Prodigy, but in the meantime, the on-line service is showing its softer side on packages of free software that were sent to consumers last week. On the cover of the package is young, beautiful, ample-breasted, lip-parted Amber, who "got into Prodigy Chat on Thursday, 11:38 p.m. It all started when I typed hello." Amber is selling what is billed on the package as "the new Prodigy."

No accounting for accountability

Some Tandem employees aren't taking kindly to the appointment of Roel Pieper as president and CEO. The new executive last week told high-level managers at a meeting that they would "be held more accountable" to the ups and downs of Tandem's business. One such manager asked whether that meant Pieper himself felt more accountable for the way the performance of UB Networks has been "tanking" Tandem's profits. Pieper was president and CEO of UB Networks from 1993 until he joined Tandem early this month. One Tandem insider observed, "It's kind of strange to put the head of a money-losing unit in charge of the entire company."

Excedrin headache #38947

Secret Service agents considered a satirical Web page as a threat to presidential candidate Sen. Bob Dole. It all started last month when *The Dallas Morning News* described political activity on the Internet, including "the Exploding Head Page." There, surfers can make the heads of politicos and celebrities such as Dole, Rush Limbaugh, Tom Hanks and Bill Gates virtually explode. Some touchy Dallas-ite alerted the local Secret Service branch, resulting in a visit to page host Virtual Visions, a Web design group in Rochester, N.Y.

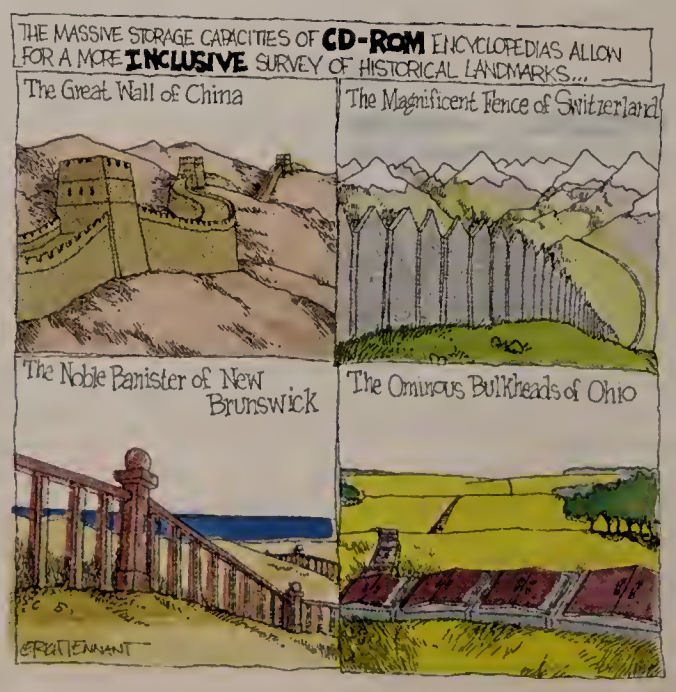
Freudian slips I and II

First, while Lotus is bundling its SmartSuite desktop application suite with PC makers AST, Epson and IBM, the information kiosks at the Lotusphere '96 conference in Orlando were all Compaq machines. Oops! Then, many attendees were left wondering about IBM Chairman Lou Gerstner's closing remarks at his keynote speech, where he called Notes 4.0 "the product for the next two years." Lotus officials assured users that he didn't mean Notes would go away in two years; what he really meant to say was that Notes 4.0 would have a significant impact on the market in the next two years. Uh-huh.

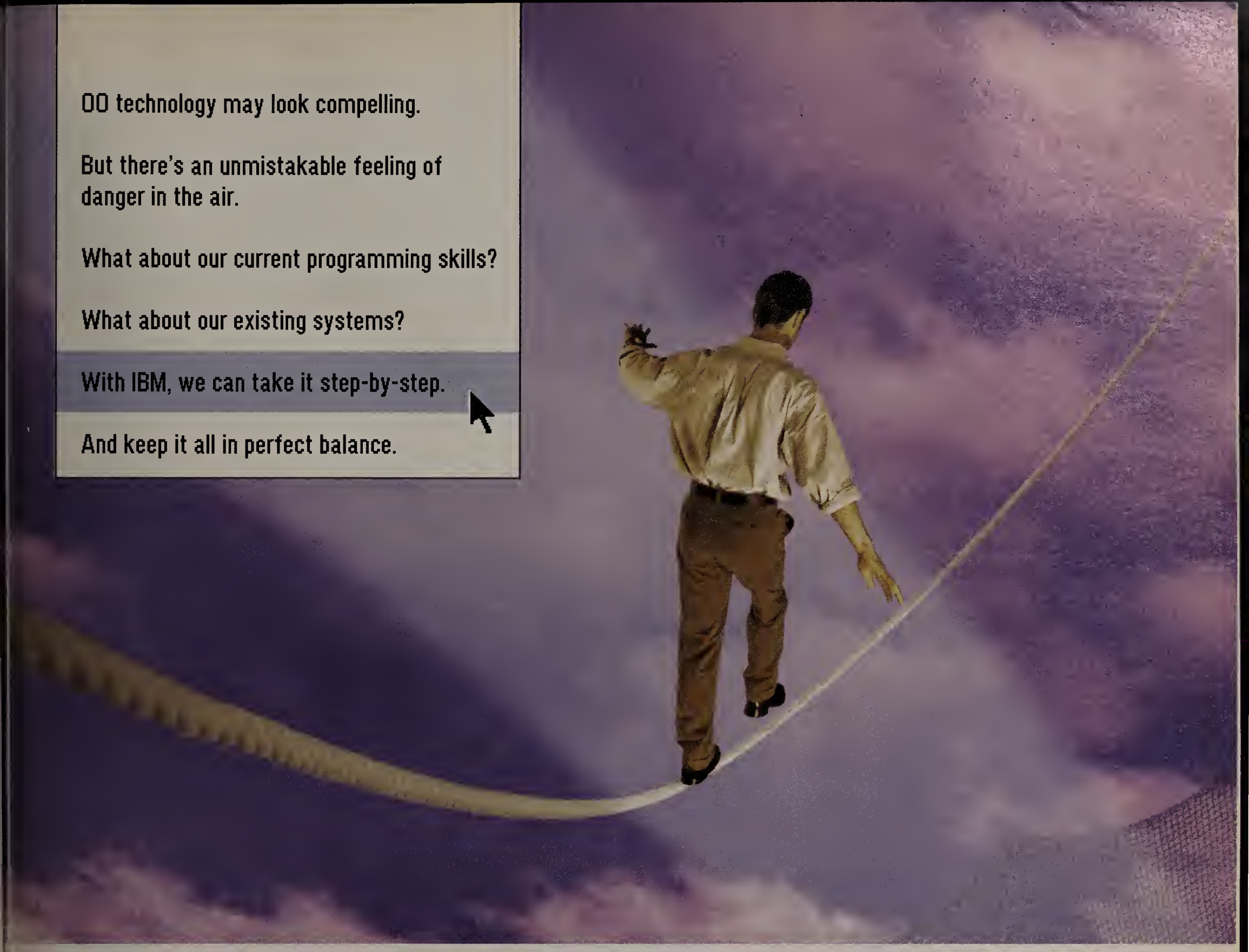
Object of desire

While relational database-mongers such as Informix and Oracle continue to plow ahead with hybrid object/relational databases, Computer Associates is close to delivering a purely object-based model. The Islandia, N.Y., software leviathan this week will flesh out the status of the object system it has been developing with Fujitsu based on the latter's ODB-II technology. Sources say the system, which is optimized for CA's Ingres, was designed to store video clips, computer-aided design snippets and other multimedia-type objects.

The 5th Wave by Rich Tennant



The new paradigm sems to be object-oriented press releases. We may be on the cusp of an emerging trend here — reusable chunks of press releases. A data warehousing announcement this month by Oracle, Data General and NEC included six paragraphs that were lifted almost entirely from a similar press release that Oracle released last September with Hewlett-Packard and EMC. Only the company names and a few words here and there were changed to protect the innocent. Whatever happened to creative writing? To contact Computerworld *about news items or tips, call our 24-hour voice mail tip line at (508) 820-8555 or our toll-free number at (800)-343-6574. News editor Maryfran Johnson can be reached by phone at (508) 820-8179 or via the Internet at maryfran_johnson@cw.com.*



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